Mt Carmel Public Utility Co.

Customer Satisfaction Survey Final Report

April 8, 2021

Table of Contents

Table of Tables

Table of Figures

1. Synopsis of the Executive Summaries

In 1998, under Illinois Administrative Code 411, "Electric Reliability," the Illinois Commerce Commission (ICC) adopted a customer survey requirement. The ICC initiated a rulemaking to design and approve a single customer survey, addressing both the residential and non-residential sectors, applicable to each Illinois Jurisdictional Entity. This Synopsis provides an overview of the results of the 2020 survey effort for Mt. Carmel Public Utility Co. The survey, which involved 145 residential customers and 32 non-residential customers, addressed the following topics as required by ICC rules: overall satisfaction; reliability performance; customer service performance; understanding of services; tree trimming performance; billing; and demographics/firmographics. The surveys were completed between October 8, 2020 and December 30, 2020. The residential portion has an overall confidence interval of ±4.2 percent at the 95 percent confidence level while the non-residential portion has an overall confidence interval of ±6.2 percent at the 95 percent confidence level. The survey consisted mostly of three question types: rating questions; yes/no questions; and categorical questions. Key findings from the 2020 study are summarized by sector and question type and significant differences from 2016 to 2020, from 2017 to 2020, from 2018 to 2020, and from 2019 to 2020 are outlined below where applicable.

1.1 Residential

Rating Questions. All rating questions use a zero to 10 scale where zero means the utility is doing a poor job and 10 means the utility is doing an excellent job. Overall research findings, ordered from highest to lowest mean rating, for questions asked of all residential survey respondents are outlined below:

- Providing reliable electric service (mean = 8.97)
- Providing electric service overall (mean = 8.95)
- Keeping the electric system in good working order (mean = 8.87)
- Restoring electric service at your residence when outages occur (mean = 8.80)
- Minimizing the number of power interruptions lasting LESS than one minute (mean = 8.54)
- Minimizing the number of power outages lasting MORE than one minute (mean = 8.36)
- Being accessible during an outage (mean = 8.16)
- Providing information about extended outages (mean = 8.10)
- Keeping electric rates reasonable (mean = 6.89)

Rating Questions – Significant Differences from Prior Years to 2020

- Being accessible during an outage is rated lower in 2020 than in 2016 (8.16 vs. 8.86, respectively)
- Providing information about extended outages is rated higher in 2020 than in 2018 (8.10 vs. 7.12, respectively)
- Keeping electric rates reasonable is rated higher in 2020 than in 2018 (6.89 vs. 6.07, respectively)

Yes/No Questions. Overall research findings, ordered from highest to lowest percentage of "yes" responses, for questions asked of all residential survey respondents are outlined below:

- Respondents who receive a bill from the utility at this location (percent "yes" = 93.1 percent)

- Respondents who tried to reach the utility by phone in the past 12 months (percent "yes" = 63.8 percent)

- Respondents who experienced any loss or damage due to electrical outages or other electrical problems (percent "yes" = 6.9 percent)

Yes/No Questions – Significant Differences from Prior Years to 2020

- The number of respondents who received a bill from the utility at this location was significantly lower in 2020 than 2018 (93.1 percent vs. 98.2 percent, respectively)

- The number of respondents who tried to reach the utility by phone was significantly higher in 2020 than 2017 and 2016 (63.8 percent vs. 52.8 and 48.1 percent, respectively)

- The number of respondents who said they personally see or handle the utility bill was significantly lower in 2020 than 2019 (94.1 percent vs. 99.3 percent, respectively)

Categorical Questions. While a number of categorical questions are included in the survey, those addressing respondents' familiarity with various utility services (ordered from most familiar to least familiar) are outlined below:

- Trimming trees to reduce the occurrence of power outages (percent "very familiar" = 68.1 percent)

- Being available 24 hours a day, 7 days a week by phone in the event of a power outage (percent "very familiar" = 64.1 percent)

- Offering different bill payment options to qualified customers (percent "very familiar" = 55.9 percent)

- Having a toll-free number to report power outages (percent "very familiar" = 48.6 percent)

- Reporting information about extended power outages to the news media to keep customers informed (percent "very familiar" = 39.4 percent)

Categorical Questions – Significant Differences from Prior Years to 2020

- In 2020, significantly less respondents said there are VERY FAMILIAR with the utility being available 24 hours a day, 7 days a week by phone in the event of a power outage than in 2019 (64.1 percent vs. 75.5 percent, respectively)

- In 2020, significantly more respondents said they are VERY FAMILIAR with the utility reporting information about extended power outages to the news media to keep customers informed than in 2018 (39.4 percent vs. 28.3 percent, respectively)

- In 2020, significantly more respondents said they are NOT AT ALL FAMILIAR with the utility trimming trees to reduce the occurrence of power outages than in 2019 and 2018 (16.7 percent vs. 6.0 and 7.5 percent, respectively)

1.2 Non-Residential

Rating Questions. All rating questions use a zero to 10 scale where zero means the utility is doing a poor job and 10 means the utility is doing an excellent job. Overall research findings, ordered from highest to lowest mean rating, for questions asked of all non-residential survey respondents are outlined below:

- Providing electric service overall (mean = 9.19)

- Providing reliable electric service (mean =9.06)

- Restoring electric service at your business when outages occur (mean= 9.03)

- Keeping the electric system in good working order (mean = 9.00)

- Minimizing the number of power outages lasting MORE than one minute (mean = 8.84)

- Minimizing the number of power interruptions lasting LESS than one minute (mean = 8.77)

- Being accessible during an outage (mean = 8.30)

- Providing information about extended outages (mean = 7.90)

- Keeping electric rates reasonable (mean = 6.48)

- Rating Questions – Significant Differences from Prior Years to 2020

- Providing information about extended outages was rated significantly lower in 2020 than in 2019 (7.90 vs. 8.97, respectively)

Yes/No Questions. Overall research findings, ordered from highest to lowest percentage of "yes" responses, for questions asked of all non-residential survey respondents are outlined below:

- Respondents who receive a bill from the utility at this location (percent "yes" = 90.6 percent)

- Respondents who tried to reach the utility by phone in the past 12 months (percent "yes" = 58.1 percent)

- Respondents who experienced any loss or damage due to electrical outages or other electrical problems (percent "yes" = 9.4 percent)

Yes/No Questions – Significant Differences from Prior Years to 2020

- No significant differences were observed.

Categorical Questions. While a number of categorical questions are included in the survey, those addressing respondents' familiarity with various utility services (ordered from most familiar to least familiar) are outlined below:

- Trimming trees to reduce the occurrence of power outages (percent "very familiar" = 75.0 percent)

- Being available 24 hours a day, 7 days a week by phone in the event of a power outage (percent "very familiar" = 71.9 percent)

- Offering different bill payment options to qualified customers (percent "very familiar" = 61.3 percent)

- Reporting information about extended power outages to the news media to keep customers informed (percent "very familiar" = 43.8 percent)

- Having a toll-free number to report power outages (percent "very familiar" = 43.8 percent)

Categorical Questions – Significant Differences from Prior Years to 2020

- In 2020, significantly fewer respondents said they were NOT AT ALL FAMILIAR with the utility trimming trees to reduce the occurrence of power outages than in 2016 (6.2 percent vs. 22.3 percent, respectively)

2.   Background

In 1997, the State of Illinois passed legislation on electric industry restructuring. Provisions were made to monitor electric service reliability, both operationally and via customer perception. In 1998, under the Illinois Administrative Code 411, "Electric Reliability," the Illinois Commerce Commission (ICC) adopted a customer survey requirement. The ICC initiated a rulemaking to design and approve a single customer survey applicable to each Illinois Jurisdictional Entity. The Illinois Jurisdictional Entities include Alliant Energy, AmerenCIPS, AmerenCILCO, AmerenIP, Commonwealth Edison, MidAmerican Energy Company, and Mt. Carmel Public Utility Co.

The Illinois Jurisdictional Entities joined forces and, through a competitive bidding process, selected Opinion Dynamics Corporation (ODC) to implement the study. ODC is a full-service, national market and public opinion research firm based in Waltham, Massachusetts, with satellite offices in California and Oregon.

Research was conducted to address both the residential and non-residential sectors. The research enables the individual Illinois Jurisdictional Entities to compare and contrast their survey results to past survey efforts (2016, 2017, 2018, and 2019). The research also provides the ICC with basic knowledge about consumer understanding of electric delivery services and pricing, consumer satisfaction with electric delivery services and reliability, and changes in consumer understanding and satisfaction.

3.   Objectives

The ICC set a yearly requirement, starting in 2000, for each Illinois Jurisdictional Entity. The requirement reads as follows:

> "Each jurisdictional entity is required to submit to the Commission an annual report that includes the results of a customer satisfaction survey. The customer satisfaction survey covers reliability of electric service, customer service, and customer understanding of the jurisdictional entity's services and prices."[1]

The survey addresses the following topics as required by the ICC rules: overall satisfaction; reliability performance; customer service performance; understanding of services; tree trimming performance; billing; and demographics/firmographics.

- The research objectives for the surveys are to provide the ICC with basic knowledge of Mt. Carmel Public Utility Co.'s residential and non-residential customers, particularly:

- Satisfaction with overall electric service, including reliability and rates, and recent outage experiences;

- Opinions of utility services including restoration of power, keeping the public informed, and being accessible;

- Familiarity with various utility services;

- Opinions of utility tree trimming efforts;

- Receipt, handling, and ease of use of Mt. Carmel Public Utility Co.'s billing statements; and

- Demographic (residential) and firmographic (non-residential) information.

---

[1] Illinois Administrative Code 411, "Electric Reliability," Section 411.300, Purpose of Subpart D.

4.   Methodology

This research project consists of 145 residential telephone surveys and 32 non-residential telephone surveys with Mt. Carmel Public Utility Co.'s electric utility customers. The surveys, designed to address the research objectives outlined in Section III, were completed between October 8, 2020 and December 30, 2020. The survey and survey procedures for Mt. Carmel Public Utility Co. were identical to those used for the other Illinois Jurisdictional Entities.

ODC Interviewers. Interviewers were extensively trained to conduct the interviews effectively and efficiently while minimizing interviewer bias. The same individual trained interviewers were used throughout the 2020 survey to ensure consistency in conducting the interviews. However, the group of interviewers used in 2020 was not necessarily comprised of the same individuals as in 2019, 2018, 2017, or 2016.

Survey Respondents. For the residential population, the survey respondent was the person in the household who is most familiar with the household's electric service. For non-residential customers, the survey respondent was the person who is most familiar with electric service in the organization. Survey respondents were not offered any type of incentive to encourage them to participate.

Telephone Procedures. Before eliminating a customer and randomly selecting a replacement, ODC completed the following steps: 1) made a minimum of five telephone calls to each randomly selected customer; 2) attempted to reach the randomly selected customer at different times of the day; 3) called the customer back at the specified time if the customer answered the telephone but asked to respond to the survey at a different time; and 4) called back at a time the target respondent was expected to be at home or the office if the telephone was answered by anyone but the target respondent. Interviewers were not allowed to volunteer the name of Mt. Carmel Public Utility Co. or any other electricity provider during the course of the survey interview.

Survey Pre-Test. A pre-test of the survey instrument was completed with a total of 10 randomly selected residential respondents and 10 randomly selected non-residential respondents. Both residential and non-residential pre-test respondents were selected to include customers of the participating Illinois Jurisdictional Entities: Ameren Illinois, Commonwealth Edison, MidAmerican Energy Company, and Mt. Carmel Public Utility Co. The ODC research team closely monitored the pre-test effort and found survey respondents able to both understand and respond to each of the individual survey questions. As a result, no wording changes were proposed.

Sampling. In order to determine target survey respondents, Mt. Carmel Public Utility Co. staff pulled its entire residential and non-residential populations. Mt. Carmel Public Utility Co.'s 3701 residential accounts and 456 (with duplicate entries removed) non-residential accounts were then randomly sampled to produce the completed interviews.

Table 1 provides a complete breakdown of the sample used as part of this study. The residential portion of this study has an overall confidence interval of ±4.2 percent at the 95 percent confidence level while the non-residential portion has an overall confidence interval of ±6.2 percent at the 95 percent confidence level.

Independent Reviewer Statement. ODC staff have reviewed the procedures used by Mt. Carmel Public Utility Co. to select both their residential and non-residential samples. We believe the procedures used resulted in randomly drawn samples which are representative of the residential and non-residential customer population. We recommend that the same procedures be followed in the future for two important reasons. First, high response rates were achieved through this sampling procedure (see Table 1). Second, consistent procedures will preserve the research team's ability to compare and contrast future and past results with these 2020 results.

Table 1. Survey Response Rate

Final Dispositions	Residential	Non-Residential
Starting Sample	3701	456
Out-of-Sample	3003	330
Disconnected Number	1743	100
Fax/Modem Number	117	4
Changed/Wrong Number	22	20
Residential/Business Number	94	11
Language Barrier	8	0
No Answer/Answering Machine/Busy	941	167
Do Not Call	16	2
Screened/Not Qualified	62	26
Prospective Respondents Contacted	698	126
Initial Refusal	438	82
Callbacks Scheduled	2	6
Mid-Interview Terminates	113	6
Survey Completions	145	32
Response Rate	21%	25%

5. Residential Executive Summary

This section of the report is divided into seven major subsections that present the findings of the 145 telephone surveys conducted with Mt. Carmel Public Utility Co.'s residential customers. The subsections are in the order they appear in the survey instrument (see Appendix A).

- Subsection "5.1" provides ratings of the utility's overall electric service, their ability to provide reliable service, and their performance on keeping electric rates reasonable.

- Subsection "5.2" discusses Mt. Carmel Public Utility Co.'s reliability in detail including the length and timing of recent outages.

- Subsection "5.3" presents residential customer opinions of utility services including restoration of power, keeping the public informed, and being accessible.

- Subsection "5.4" discusses residential respondents' familiarity with various utility services.

- Subsection "5.5" presents customer opinions of utility tree trimming efforts.

- Subsection "5.6" discusses the receipt, handling, and ease of use of Mt. Carmel Public Utility Co.'s billing statements.

- Finally, subsection "5.7" presents respondent demographic information including age, home ownership status, income, people living in household, and gender.

All survey questions asked of residential respondents are discussed within this Residential Executive Summary. There are three types of questions contained in the survey: rating questions, yes/no questions, and categorical questions. In each of the seven subsections that follow, overall question results from the 2020 study are either discussed or graphically presented and then significant findings for those questions are outlined. In addition, overall question results from the prior studies are graphically presented and significant differences between 2020 and prior results are outlined.

- **Rating Questions.** All rating questions use a zero to 10 scale, where zero means the utility is doing a poor job and 10 means the utility is doing an excellent job. As required in Illinois Administrative Code 411.350, all rating questions underwent two broad statistical tests—Pearson Product Moment Correlation and Chi-Square.

- **Pearson Product Moment Correlation Coefficients.** Significant relationships between a particular rating question and all other rating questions were determined through the use of the Pearson Product Moment Correlation Coefficient. Only those rating question combinations that resulted in a correlation coefficient with an absolute value of 0.5 or higher are discussed within this Executive Summary.

- **Chi-Square.** Significant relationships between a particular rating question and all yes/no, categorical, and demographic questions were determined through the use of the Chi-Square test. Only those Chi-Squares with a significance of 0.05 or less are discussed within this Executive Summary.

- **Independent T-test for Means.** Upon finding a significant Chi-Square, the research team utilized a standard independent t-test for means to provide further insight into the nature or direction of the relationship between a rating question and a yes/no, categorical, or demographic question. This additional testing is not required as a part of the ICC rules, but is provided to give the reader further insight into the data without being unduly burdensome. When reviewing the t-test results, the research team looked for a "general pattern of response" rather than statistical significance within every dimension of the cross-tabulation table. For instances where the t-test resulted in no statistically significant differences or consistent/logical pattern across segment means, the relationship between

the two cross-tabbed variables is described as having "no general pattern of response." Otherwise, the direction of the relationship is indicated.

Yes/No and Categorical Questions. As required in Illinois Administrative Code 411.350, all yes/no and categorical questions underwent a single statistical test—Chi-Square.

■ **Chi-Square.** Significant relationships between a particular yes/no or categorical question and all demographic questions were determined through the use of the Chi-Square test. Only those Chi-Squares with a significance of 0.05 or less are discussed within this Executive Summary.

■ **Independent Z-test for Percentages.** Upon finding a significant Chi-Square, the research team utilized a standard independent z-test for percentages to provide further insight into the nature or direction of the relationship between the yes/no or categorical question and a demographic question. This additional testing is not required as a part of the ICC rules, but is provided to give the reader further insight into the data without being unduly burdensome. When reviewing the z-test results, the research team looked for a "general pattern of response" rather than statistical significance within every dimension of the cross-tabulation table. For instances where the z-test resulted in no statistically significant differences or consistent/logical pattern across segment proportions, the relationship between the two cross-tabbed variables is described as having "no general pattern of response." Otherwise, the direction of the relationship is indicated.

Significant Differences from 2020 to prior results. As required in Illinois Administrative Code 411.355, all responses from the current year (2020) were compared to historical study responses (2016, 2017, 2018, and 2019). To determine significant relationships, two statistical tests were performed—independent t-test for means and independent z-test for proportions. Consistent with the overall analysis plan, only significant differences between 2020 and prior results are discussed. It is important to note that this report highlights all 2020 versus prior year comparisons where "statistically" significant differences are found. While many of these differences may not be large enough to be "meaningful" or "substantive" we, nevertheless, report them. The research team decided not to select a "substantive" significance level (which refers to an absolute difference between 2020 and prior results that must be achieved before a change is considered meaningful) because, while there is precedent for such a choice in customer satisfaction literature, setting a "substantive" significance level is fundamentally a subjective process. To keep the process completely objective, we have reported on all "statistically" significant differences. However, some of the "statistical" differences highlighted in this report (with respect to 2020 versus prior year comparisons) may not be meaningful because the absolute difference is small.

■ **Independent T-test for Means**. Significant relationships between 2020 and prior results for all rating questions were determined through the use of a standard independent t-test for means.

■ **Independent Z-test for Percentages.** Significant relationships between 2020 and prior results for all yes/no and categorical questions were determined through the use of a standard independent z-test for percentages.

An explanation of the tables contained in the appendices (Chi-Square tables, and t-test/z-test tables) and the statistical tests used in this study (correlation coefficients, Chi-Square tests, t-tests, and z-tests) are located in Appendix B. Correlation coefficients of all residential rating questions by all other rating questions are located in Appendix C. Required cross tabulations and t-test/z-test tables for all residential survey questions are available in electronic format (file names: Appendix D – Mt Carmel Residential Chi Square.doc and Appendix D – Mt Carmel Residential Z test & T test.doc, respectively) while a chart of question combinations with significant Chi-Squares is located in Appendix D. Required cross tabulations comparing 2020 with prior results

for all residential survey questions are also available in electronic format (file name: Appendix F – Mt Carmel Residential Comparison 2016-2020.doc).

5.1 Overall Satisfaction

We asked survey respondents to rate the job Mt. Carmel Public Utility Co. does on providing electric service overall. In addition, we asked respondents to rate the reliability of electric service they receive and to rate how well Mt. Carmel Public Utility Co. keeps their electric rates reasonable. Key findings are summarized below.

5.1.1 Overall Findings: Q1, Q2, and Q3

On average, respondents give Mt. Carmel Public Utility Co. a rating of 8.95 for providing electric service overall. In addition, respondents give the utility an average rating of 8.79 for providing reliable electric service while they give the utility an average rating of 6.89 for keeping electric rates reasonable (See Figure 1).

Figure 1. Mean Ratings for Overall Satisfaction
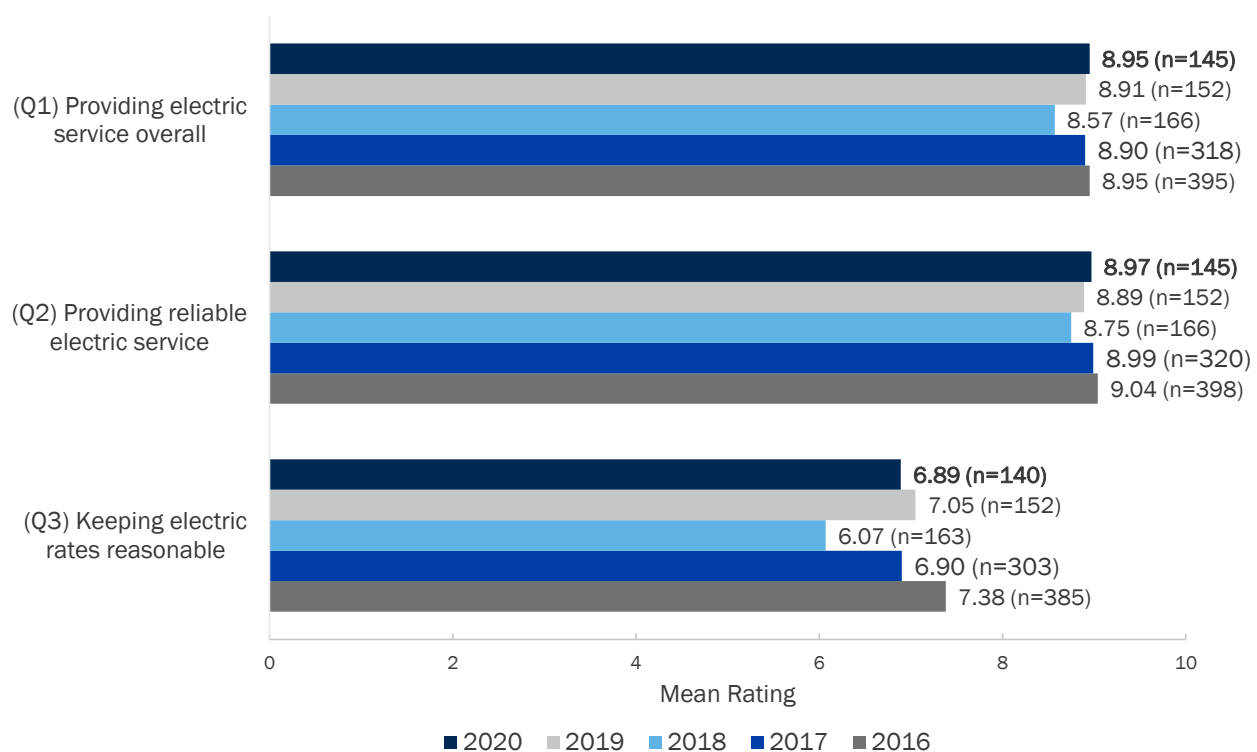
Significant Differences – Prior Years to 2020

■ Keeping electric rates reasonable (Q3) is rated significantly higher in 2020 than in 2018.

Significant Chi-Squares –2020

Providing electric service overall (Q1) is rated higher by respondents who:

■ Report experiencing fewer power outages lasting MORE than one minute in the past 12 months (Q8);

■ Said the length of their last power outage lasting MORE than one minute in the past 12 months was NOT six to 12 hours (Q10);

- Report their LONGEST outage in the past 12 months that lasted more than one minute was less than six hours in length (Q12);

- Said they have NOT experienced any loss or damage due to electrical outages or other electrical problems in the last 12 months (Q13); and

- Report themselves to be 65 years or older (Q33).

In addition, ratings for providing electric service (Q1) vary significantly by:

- The last time a customer experienced an outage lasting more than one minute (Q9). However, no clear pattern of response can be determined from the data;

- The length in hours of the SHORTEST outage lasting more than one minute (Q11). However, no clear pattern of response can be determined from the data;

- Customer familiarity with Mt. Carmel's 24/7 phone support in the event of power outages (Q23). However, no clear pattern of response can be determined from the data; and

- Customer familiarity with Mt. Carmel trimming trees to reduce the occurrence of outages (Q26). However, no clear pattern of response can be determined from the data; and

- Ownership status of the respondent's residence (Q34). However, no clear pattern of response can be determined from the data.

Providing reliable electric service (Q2) is rated higher by respondents who:

- Report experiencing fewer power outages lasting MORE than one minute in the past 12 months (Q8);

- Said the length of their last power outage lasting MORE than one minute in the past 12 months was less than six hours (Q10);

- Report their LONGEST outage in the past 12 months that lasted more than one minute was less than six hours in length (Q12);

- Said they have NOT experienced any loss or damage due to electrical outages or other electrical problems in the last 12 months (Q13); and

- Said they are VERY FAMILIAR with the utility being available 24 hours a day, seven days a week by phone in the event of a power outage (Q23).

In addition, providing reliable electric service overall (Q2) varies significantly by:

- The length in hours of the SHORTEST outage lasting more than one minute (Q11). However, no clear pattern of response can be determined from the data;

- Respondent familiarity with the utility trimming trees to reduce the occurrence of power outages (Q26). However, no clear pattern of response can be determined from the data; and

- Whether or not the respondent personally sees or handles their utility bill (Q31). However, no clear pattern of response can be determined from the data.

Keeping electric rates reasonable (Q3) is rated higher by respondents who:

- Report experiencing fewer power outages lasting MORE than one minute in the past 12 months (Q8); and

■ Said the length of their last power outage lasting MORE than one minute in the past 12 months was less than two hours (Q10).

In addition, ratings for keeping electric rates reasonable (Q3) varies significantly by:

■ The method used to complete most recent call to the utility (Q20). However, no clear pattern of response can be determined from the data.

Significant Correlation Coefficients –2020

Providing electric service overall (Q1) significantly correlates with:

■ Providing reliable electric service (Q2);

■ Keeping your electric rates reasonable (Q3);

■ Keeping the electric system, including power lines and equipment, in good working order (Q4);

■ Minimizing the number of power interruptions lasting LESS than one minute (Q5);

■ Minimizing the number of power outages lasting MORE than one minute (Q7);

■ Restoring electric service at your residence when outages occur (Q15);

■ Providing information about extended outages (Q16);

■ Being accessible during an outage (Q17)

■ Meeting the customers' needs during the most recent phone call (Q21);

■ Trimming trees and clearing branches away from power lines to reduce the occurrence of power outages (Q27);

■ Communicating the need for trimming trees (Q28); and

■ Providing a bill that makes it easy to tell how much the current month's charges are (Q32).

Providing reliable electric service (Q2) significantly correlates with:

■ Providing electric service overall (Q1);

■ Keeping your electric rates reasonable (Q3);

■ Keeping the electric system, including power lines and equipment, in good working order (Q4);

■ Minimizing the number of power interruptions lasting LESS than one minute (Q5);

■ Minimizing the number of power outages lasting MORE than one minute (Q7);

■ Restoring electric service at your residence when outages occur (Q15);

■ Providing information about extended outages (Q16);

■ Being accessible during an outage (Q17);

■ Meeting the customers' needs during the most recent phone call (Q21);

■ Trimming trees and clearing branches away from power lines to reduce the occurrence of power outages (Q27); and

■ Providing a bill that makes it easy to tell how much the current month's charges are (Q32).

Keeping electric rates reasonable (Q3) significantly correlates with:

- Providing electric service overall (Q1);
- Providing reliable electric service (Q2);
- Keeping the electric system, including power lines and equipment, in good working order (Q4);
- Minimizing the number of power outages lasting MORE than one minute (Q7);
- Providing information about extended outages (Q16);
- Being accessible during an outage (Q17);
- Meeting the customers' needs during the most recent phone call (Q21); and Communicating the need for trimming trees (Q28).

5.2 Reliability Performance

Respondents were asked to rate Mt. Carmel Public Utility Co.'s performance on electric reliability. In addition, respondents were asked for the number of power interruptions lasting less than and more than one minute they have experienced in the past 12 months and how long these power interruptions lasted. Key findings are summarized below.

5.2.1 Overall Findings: Q4, Q5, and Q7

Respondents give Mt. Carmel Public Utility Co. a mean rating of 8.87 for keeping the electric system in good working order. In addition, respondents give the utility a mean rating of 8.54 for minimizing the number of power outages lasting LESS than one minute while they give the utility a mean rating of 8.36 for minimizing the number of power interruptions lasting MORE than one minute (See Figure 2).

Figure 2. Mean Ratings for Reliability Performance
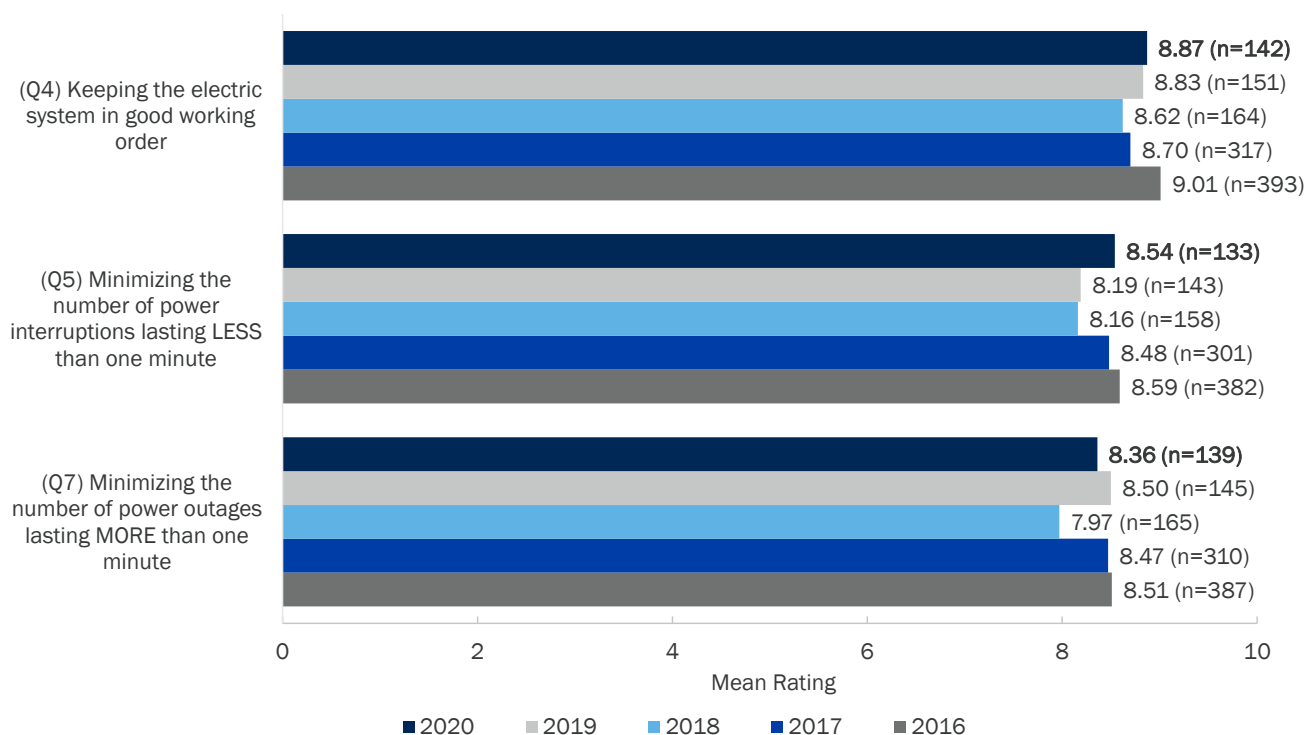
Significant Differences – Prior Years to 2020

- No significant differences were observed.

Significant Chi-Squares –2020

Keeping the electric system in good working order (Q4) is rated higher by respondents who:

- Report experiencing fewer power interruptions lasting LESS than one minute in the past 12 months (Q6);

- Report experiencing fewer power outages lasting MORE than one minute in the past 12 months (Q8);

- Report their LONGEST outage in the past 12 months that lasted more than one minute was less than six hours in length (Q12); and

- Said they are VERY FAMILIAR with the utility reporting information about extended power outages to the news media to keep customers informed (Q24).

In addition, keeping the electric system in good working order (Q4) varies significantly by:

- The timing (month and day) of the most recent outage lasting MORE than one minute in the past 12 months (Q9). However, no clear pattern of response can be determined from the data;

- Whether or not they have experienced any loss or damage due to electrical outages or other electrical problems in the last 12 months (Q13). However, no clear pattern of response can be determined from the data;

- The method used to complete most recent call to the utility (Q20). However, no clear pattern of response can be determined from the data;

- Respondent awareness of the utility being available 24 hours a day, seven days a week by phone in the event of a power outage (Q23). However, no clear pattern of response can be determined from the data;

- Respondent familiarity with the utility trimming trees to reduce the occurrence of power outages (Q26). However, no clear pattern of response can be determined from the data; and

- Whether or not the respondent personally sees or handles their utility bill (Q31). However, no clear pattern of response can be determined from the data.

Minimizing the number of power interruptions lasting less than one minute (Q5) is rated higher by respondents who:

- Report experiencing fewer power interruptions lasting LESS than one minute in the past 12 months (Q6);

- Report experiencing fewer power outages lasting MORE than one minute in the past 12 months (Q8);

- Said the length in hours of the SHORTEST outage lasting more than one minute was two hours or less (Q11);

- Report their LONGEST outage in the past 12 months that lasted more than one minute was 12 hours or less in length (Q12);

- Said they have NOT experienced any loss or damage due to electrical outages or other electrical problems in the last 12 months (Q13);

- Said they are VERY FAMILIAR with the utility being available 24 hours a day, seven days a week by phone in the event of a power outage (Q23); and

- Said they are VERY FAMILIAR with the utility reporting information about extended power outages to the news media to keep customers informed (Q24).

In addition, minimizing the number of power interruptions lasting less than one minute (Q5) varies significantly by:

- The length of the last power outage lasting MORE than one minute in the past 12 months (Q10). However, no clear pattern of response can be determined from the data;

- The method used to complete most recent call to the utility (Q20). However, no clear pattern of response can be determined from the data;

- Respondent familiarity with the utility trimming trees to reduce the occurrence of power outages (Q26). However, no clear pattern of response can be determined from the data; and

- Whether or not the respondent personally sees or handles their utility bill (Q31). However, no clear pattern of response can be determined from the data.

Minimizing the number of power outages lasting more than one minute (Q7) is rated higher by respondents who:

- Report experiencing fewer power outages lasting MORE than one minute in the past 12 months (Q8);

- Said the length in hours of the SHORTEST outage lasting more than one minute was two hours or less (Q11);

- Report their LONGEST outage in the past 12 months that lasted more than one minute was 12 hours or less in length (Q12);

- Said they are VERY FAMILIAR or SOMEWHAT FAMILIAR with the utility being available 24 hours a day, seven days a week by phone in the event of a power outage (Q23); and

- Said they are VERY FAMILIAR with the utility reporting information about extended power outages to the news media to keep customers informed (Q24).

In addition, ratings for minimizing the number of power outages lasting more than one minute (Q7) varies significantly by:

- Respondent familiarity with the utility offering different bill payment options to qualified customers, such as paying a fixed monthly amount (Q25). However, no clear pattern of response can be determined from the data.

Significant Correlation Coefficients – 2020

Keeping the electric system, including power lines and equipment, in good working order (Q4) significantly correlates with:

- Providing electric service overall (Q1);

- Providing reliable electric service (Q2);

- Keeping your electric rates reasonable (Q3);

- Minimizing the number of power interruptions lasting LESS than one minute (Q5);

- Minimizing the number of power outages lasting MORE than one minute (Q7);

- Restoring electric service at your residence when outages occur (Q15);

- Providing information about extended outages (Q16);

- Being accessible during an outage (Q17);

- Meeting the customers' needs during the most recent phone call (Q21);

- Trimming trees and clearing branches away from power lines to reduce the occurrence of power outages (Q27);

- Communicating the need for trimming trees (Q28);

- Trying hard to preserve the appearance of the trees they trim (Q29); and

- Providing a bill that makes it easy to tell how much the current month's charges are (Q32).

Minimizing the number of power interruptions lasting LESS than one minute (Q5) significantly correlates with:

- Providing electric service overall (Q1);

- Providing reliable electric service (Q2);

- Keeping the electric system, including power lines and equipment, in good working order (Q4);

- Minimizing the number of power outages lasting MORE than one minute (Q7);

- Restoring electric service at your residence when outages occur (Q15);

- Providing information about extended outages (Q16);

- Being accessible during an outage (Q17);

- Meeting the customers' needs during the most recent phone call (Q21);

- Trimming trees and clearing branches away from power lines to reduce the occurrence of power outages (Q27); and

- Providing a bill that makes it easy to tell how much the current month's charges are (Q32).

Minimizing the number of power outages lasting MORE than one minute (Q7) significantly correlates with:

- Providing electric service overall (Q1);

- Providing reliable electric service (Q2);

- Keeping your electric rates reasonable (Q3);

- Keeping the electric system, including power lines and equipment, in good working order (Q4);

- Minimizing the number of power interruptions lasting LESS than one minute (Q5);

- Restoring electric service at your residence when outages occur (Q15);

- Providing information about extended outages (Q16);

- Being accessible during an outage (Q17);

- Meeting the customers' needs during the most recent phone call (Q21); and

- Providing a bill that makes it easy to tell how much the current month's charges are (Q32).

5.2.2   Overall Findings: Q6 and Q8

In the past 12 months, 45 percent of respondents said they have experienced no power interruptions lasting LESS than one minute. Twenty-seven percent said they have experienced one or two and 28 percent said they have experienced three or more outages lasting LESS than one minute (See Figure 3).

Figure 3. Number of Outages (LESS than one minute)

(Q6) Number of outages LESS than one minute

■ No Outages   ■ One or Two Outages   ■ Three or More Outages
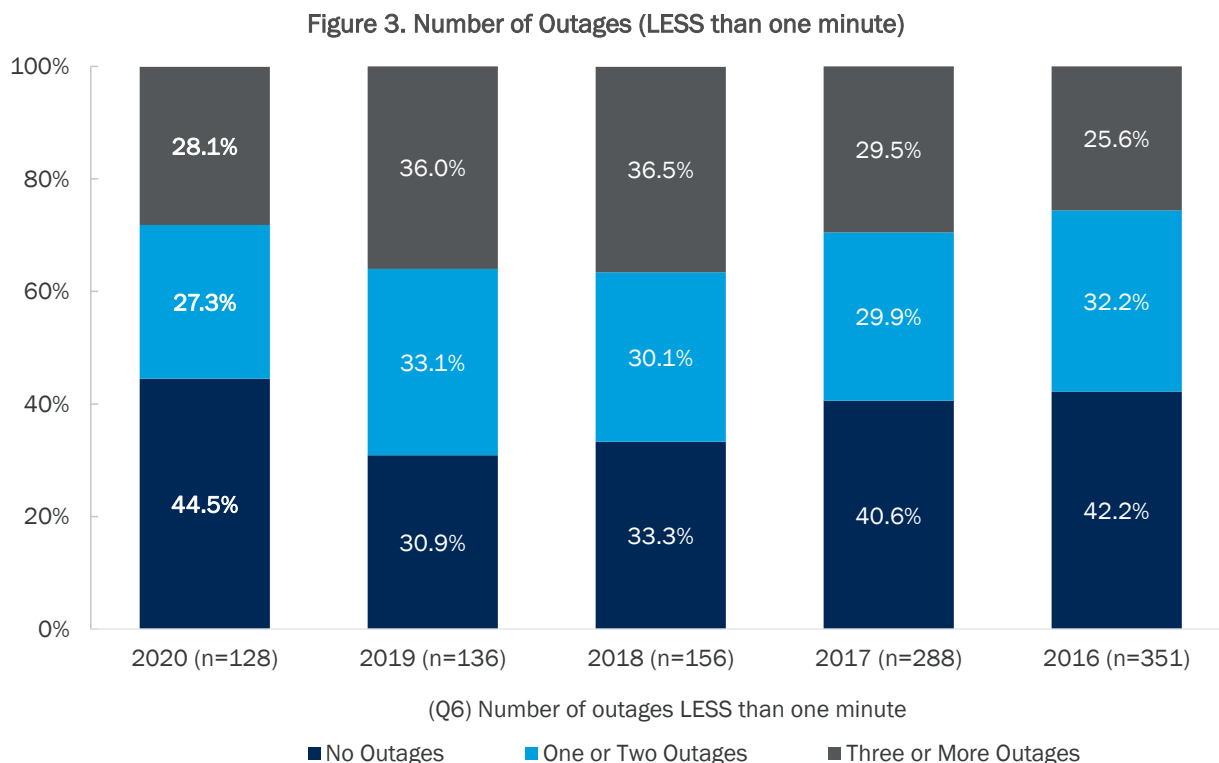
In the past 12 months, 25 percent of respondents said they have experienced no power outages lasting MORE than one minute. Forty percent said they have experienced one or two while 35 percent said they have experienced three or more outages lasting MORE than one minute (See Figure 4).

Figure 4. Number of Outages (MORE than one minute)
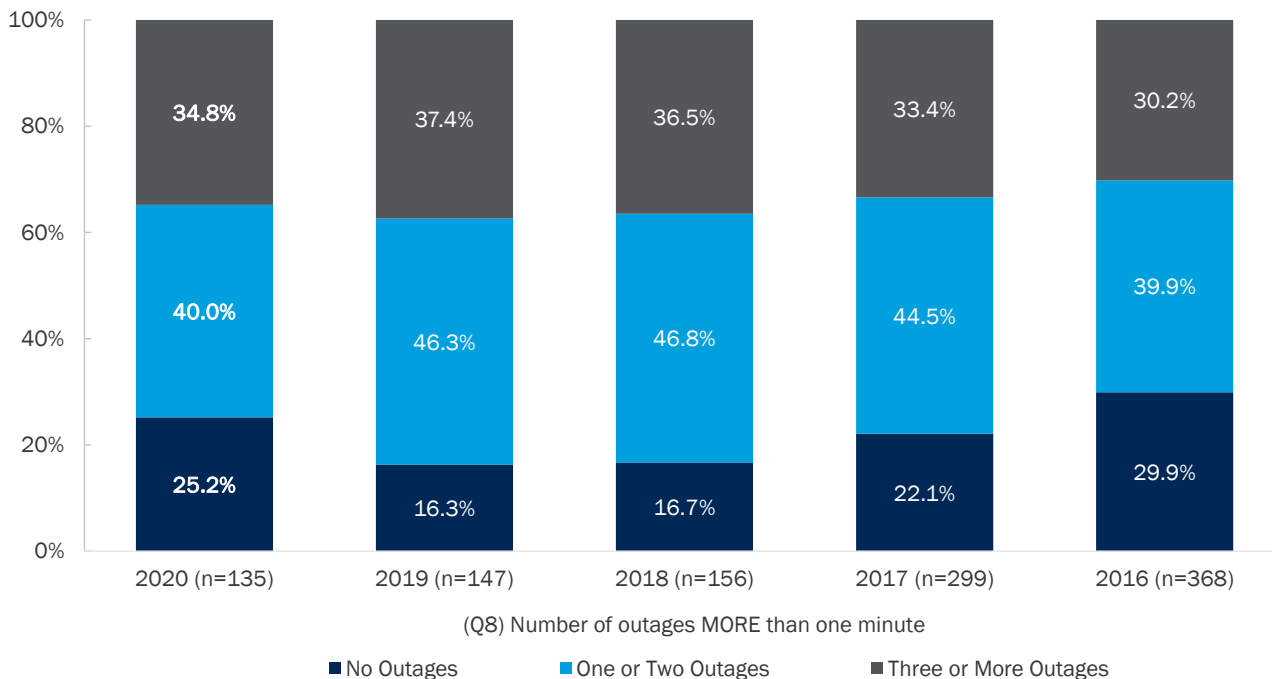
(Q8) Number of outages MORE than one minute

■ No Outages   ■ One or Two Outages   ■ Three or More Outages

Significant Differences – Prior Years to 2020

■ In 2020, significantly more respondents than in 2019 said they have experienced zero power interruptions lasting LESS than one minute in the past 12 months (Q6).

Significant Chi-Squares – 2020

A respondent's number of power interruptions lasting less than one minute in the last 12 months (Q6) varies significantly by:

■ Years lived at the current address (Q35). However, no clear pattern of response can be determined from the data.

5.2.3   Overall Findings: Q9

Of those respondents who have experienced an outage lasting MORE than one minute in the past 12 months, 25 percent said the most recent outage occurred during the fourth quarter of 2020. See Figure 5 below for a complete breakdown of when respondents said their last outage lasting MORE than one minute occurred.

Figure 5. Most Recent Outage
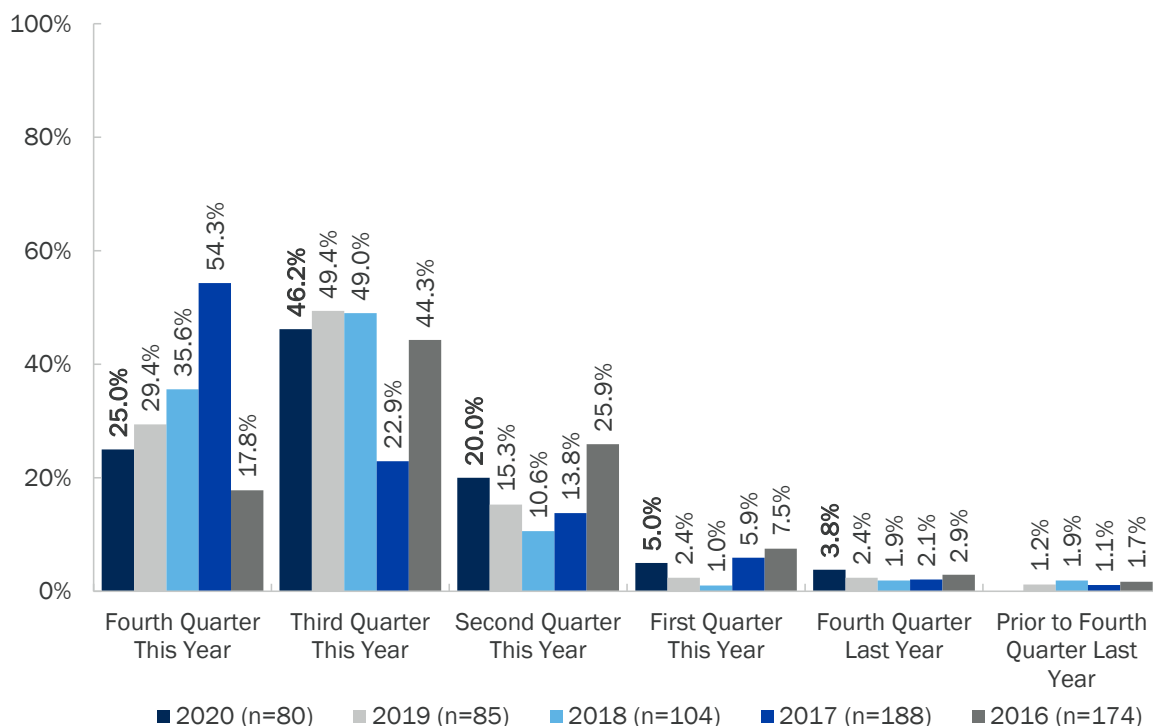
Significant Differences – Prior Years to 2020

- In 2020 significantly fewer respondents than in 2017 report experiencing their most recent outage lasting MORE than one minute (Q9) in the fourth quarter of this year.

- In 2020, significantly more respondents than in 2017 report experiencing their most recent outage lasting MORE than one minute (Q9) in the third quarter of this year.

Significant Chi-Squares – 2020

- No significant chi-squares were observed.

5.2.4   Overall Findings: Q10, Q11, and Q12

Fifty-three percent of respondents who experienced a power outage lasting MORE than one minute during the past 12 months (Q10) said the MOST RECENT power outage lasted for one to five hours. See Figure 6 for a complete breakdown of respondents who experienced a power outage lasting MORE than one minute in the past 12 months.

Seventy-seven percent of respondents who experienced more than one outage lasting MORE than one minute during the past 12 months (Q11) said the SHORTEST of these outages lasted less than one hour. Figure 6 for a complete breakdown of the shortest outages respondents experienced lasting MORE than one minute in the past 12 months.

Sixty-seven percent of respondents who experienced more than one outage lasting MORE than one minute (Q12) during the past 12 months said the LONGEST of these outages lasted for one to five hours. See Figure 6 for a complete breakdown of the longest outages respondents experienced lasting MORE than one minute in the past 12 months.

Figure 6. Length of Outages
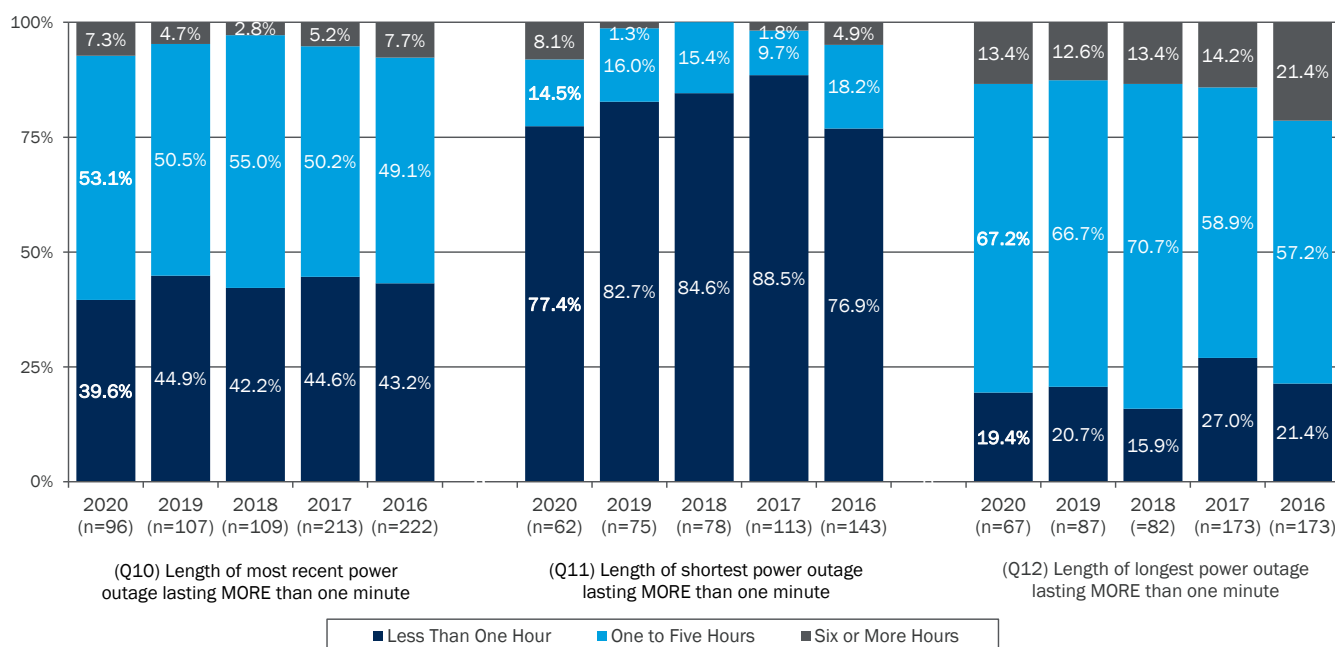
Note: Only those respondents who said they experienced an outage lasting MORE than one minute in the last 12 months were asked for the length of their most recent power outage. Only those respondents who said they experienced more than one outage lasting MORE than one minute in the last 12 months were asked for the length of the shortest and longest of these outages.

Significant Differences – Prior Years to 2020

■ No significant differences were observed.

Significant Chi-Squares – 2020

■ No significant chi-squares were observed.

5.2.5   Overall Findings: Q13 and Q14

In the past 12 months, 7 percent of all residential respondents said they experienced a loss or damage due to electrical outages or other electrical problems. Sixty percent of these respondents experienced a loss of electrical equipment or accessories. Fifty percent said they experienced another kind of damage or loss (Table 2).

Table 2. Loss or Damage Suffered Due to Electric Outages or Related Problems

(Q14) Loss or Damage Suffered	Percent of Respondents				
	2020	2019	2018	2017	2016
Loss of electrical equipment or accessories	60.0%	88.9%	83.3%	41.7%	78.6%
Loss of perishables	50.0%	--	--	16.7%	21.4%
Interruption of business	--	--	--	--	7.1%
Injury to self or another person	--	--	--	--	--
Other	--	11.1%	33.3%	41.7%	21.4%
(n)	10	9	6	12	14

Note: Respondents were permitted to mention more than one type of loss or damage suffered. Only those respondents who said they suffered a loss or damage due to an electrical outage or related problem were asked this question.

Significant Differences – Prior Years to 2020

■   No significant differences were observed.

Significant Chi-Squares – 2020

■   No significant chi squares were observed.

5.3   Customer Service Performance

In this subsection we discuss the utility's performance on customer service-related items including the restoration of power, accessibility during outages, providing information about outages, and meeting customers' needs during service calls.

5.3.1   Overall Findings: Q15, Q16, and Q17

Respondents give Mt. Carmel Public Utility Co. a mean rating of 8.80 for restoring electric service at their residence when outages occur. In addition, respondents give Mt. Carmel Public Utility Co. a mean rating of 8.16 for being accessible during an outage while they give the utility a mean rating of 8.10 for providing information about extended outages (See Figure 7).

Figure 7. Mean Ratings for Overall Satisfaction
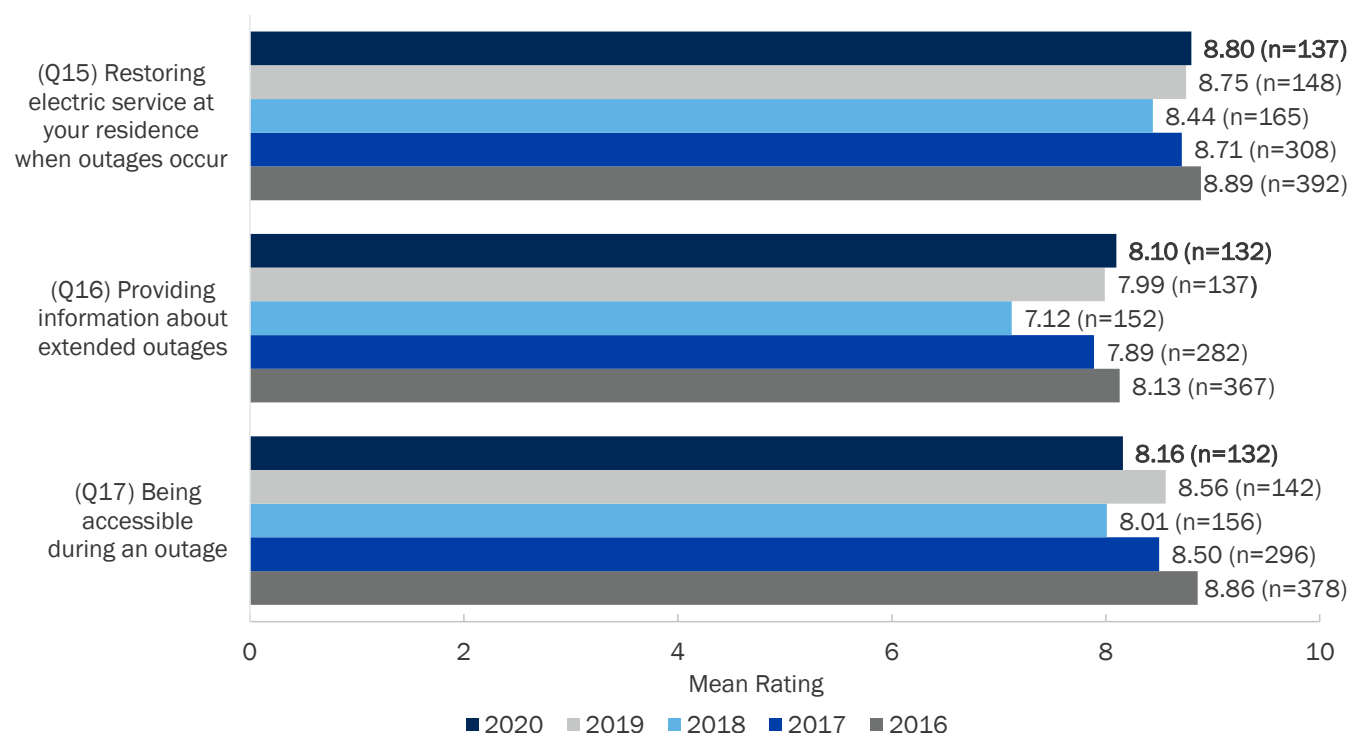
Significant Differences – Prior Years to 2020

- Providing information about extended outages (Q16) is rated significantly higher in 2020 than in 2018.
- Being accessible during an outage (Q17) is rated significantly lower in 2020 than in 2016.

Significant Chi-Squares – 2020

Restoring electric service at your residence when outages occur (Q15) is rated higher by respondents who:

- Report experiencing fewer power outages lasting MORE than one minute in the past 12 months (Q8);

■ Said the length in hours of the SHORTEST outage lasting more than one minute was two hours or less (Q11);

■ Report their LONGEST outage in the past 12 months that lasted more than one minute was less than five hours in length (Q12);

■ Said they have NOT experienced any loss or damage due to electrical outages or other electrical problems in the last 12 months (Q13); and

■ Report they are VERY FAMILIAR or SOMEWHAT FAMILIAR with the utility having a toll-free number to report power outages (Q22).

In addition, ratings for restoring electric service at your residence when outages occur (Q15) vary significantly by:

■ Respondent familiarity with the utility offering different bill payment options to qualified customers, such as paying a fixed monthly amount (Q25). However, no clear pattern of response can be determined from the data.

■ Providing information about extended outages (Q16) is rated higher by respondents who:

■ Report experiencing fewer power outages lasting MORE than one minute in the past 12 months (Q8);

■ Said they have NOT experienced any loss or damage due to electrical outages or other electrical problems in the last 12 months (Q13);

■ Said they are VERY FAMILIAR with the utility being available 24 hours a day, seven days a week by phone in the event of a power outage (Q23);

■ Said they are VERY FAMILIAR or SOMEWHAT FAMILIAR with the utility reporting information about extended power outages to the news media to keep customers informed (Q24).

Being accessible during an outage (Q17) is rated higher by respondents who:

■ Report experiencing fewer power outages lasting MORE than one minute in the past 12 months (Q8);

■ Report their LONGEST outage in the past 12 months that lasted more than one minute was less than six hours in length (Q12);

■ Said they have NOT experienced any loss or damage due to electrical outages or other electrical problems in the last 12 months (Q13); and

■ Said they are VERY FAMILIAR with the utility being available 24 hours a day, seven days a week by phone in the event of a power outage (Q23).

In addition, ratings for being accessible during an outage (Q17) vary significantly with:

■ Respondent familiarity with the utility offering different bill payment options to qualified customers, such as paying a fixed monthly amount (Q25). However, no clear pattern of response can be determined from the data.

Significant Correlation Coefficients – 2020

Restoring electric service at your residence when outages occur (Q15) significantly correlates with:

■ Providing electric service overall (Q1);

- Providing reliable electric service (Q2);

- Keeping the electric system, including power lines and equipment, in good working order (Q4);

- Minimizing the number of power interruptions lasting LESS than one minute (Q5);

- Minimizing the number of power outages lasting MORE than one minute (Q7);

- Providing information about extended outages (Q16);

- Being accessible during an outage (Q17);

- Trimming trees and clearing branches away from power lines to reduce the occurrence of power outages (Q27);

- Communicating the need for trimming trees (Q28); and

- Providing a bill that makes it easy to tell how much the current month's charges are (Q32).

Providing information about extended outages (Q16) significantly correlates with:

- Providing electric service overall (Q1);

- Providing reliable electric service (Q2);

- Keeping your electric rates reasonable (Q3);

- Keeping the electric system, including power lines and equipment, in good working order (Q4);

- Minimizing the number of power interruptions lasting LESS than one minute (Q5);

- Minimizing the number of power outages lasting MORE than one minute (Q7);

- Restoring electric service at your residence when outages occur (Q15);

- Being accessible during an outage (Q17);

- Meeting the customers' needs during the most recent phone call (Q21);

- Trimming trees and clearing branches away from power lines to reduce the occurrence of power outages (Q27);

- Communicating the need for trimming trees (Q28);

- Trying hard to preserve the appearance of the trees they trim (Q29); and

- Providing a bill that makes it easy to tell how much the current month's charges are (Q32).

Being accessible during an outage (Q17) significantly correlates with:

- Providing electric service overall (Q1);

- Providing reliable electric service (Q2);

- Keeping your electric rates reasonable (Q3);

- Keeping the electric system, including power lines and equipment, in good working order (Q4);

- Minimizing the number of power interruptions lasting LESS than one minute (Q5);

- Minimizing the number of power outages lasting MORE than one minute (Q7);

- Restoring electric service at your residence when outages occur (Q15);

- Providing information about extended outages (Q16);

- Meeting the customers' needs during the most recent phone call (Q21);

- Trimming trees and clearing branches away from power lines to reduce the occurrence of power outages (Q27);

- Trying hard to preserve the appearance of the trees they trim (Q29); and

- Providing a bill that makes it easy to tell how much the current month's charges are (Q32).

5.3.2   Overall Findings: Q18 and Q19

Sixty-four percent of all residential respondents said they tried to reach Mt. Carmel Public Utility Co. by phone in the past 12 months. Forty-six percent of these respondents called the utility to report a power problem such as an outage or a downed wire. See Table 3below for a complete breakdown of the reasons respondents cited for their most recent call to the utility.

Table 3. Reason for Making Most Recent Call to the Utility

(Q19) Reason for Most Recent Call	Percent of Respondents			
	2020	2019	2018	2016
Report a power problem, outage, or downed wire	46.1%	58.3%	62.6%	59.5%
Make a payment arrangement or other billing question	33.7%	22.9%	23.1%	24.4%
Get information about locations, programs, or services	9.0%	3.1%	3.3%	2.4%
Stop, start, or transfer service	2.2%	6.2%	1.1%	4.8%
Other	9.0%	9.4%	9.9%	8.9%

Note: Only those respondents who said they called the utility in the past 12 months were asked this question.

Significant Differences – Prior Years to 2020

- In 2020, significantly more respondents than in, 2017, and 2016 tried to reach the utility by phone in the past 12 months, while significantly fewer respondents than in 2017, and 2016 did not try to reach the utility by phone in the past 12 months (Q18).

- In 2020, respondents are significantly less likely than in 2018, 2017 and 2016 to say they made their most recent call to the utility (Q19) to report a power problem, outage, or downed wire while they are significantly more likely than in 2017 and 2016 to say they made this call to the utility to get information about locations, programs, or services.

Significant Chi-Squares – 2020

The likelihood of respondents to try to reach the utility by phone (Q18) varies significantly by:

- Number of people (including the respondent) who live in the respondent's household (Q37). However, no clear pattern of response can be determined from the data.

- The reasons given for respondents' most recent calls to Mt. Carmel (Q19) varies significantly by:

- Respondent age (Q33). However, no clear pattern of response can be determined from the data; and

- Ownership status of the respondent's residence (Q34). However, no clear pattern of response can be determined from the data.

5.3.3 Overall Findings: Q20 and Q21

Of those respondents who said they tried to reach Mt. Carmel Public Utility Co. in the past 12 months, 49 percent said they spoke to a live customer service representative only. Thirty-two percent said they used the automated telephone response system and spoke to a live customer service representative, and another 19 percent said they completed their call through an automated telephone response system only.

Respondents who only spoke with a customer service representative give Mt. Carmel Public Utility Co. an average rating of 8.77 for meeting their needs during the phone call. Respondents who spoke with a customer service representative and used the automated telephone response system give the utility an average rating of 8.96, and respondents who only used the automated telephone response system give the utility an average of 6.47 (See Figure 8).

Figure 8. Mean Ratings for Meeting Customers' Needs during Phone Calls
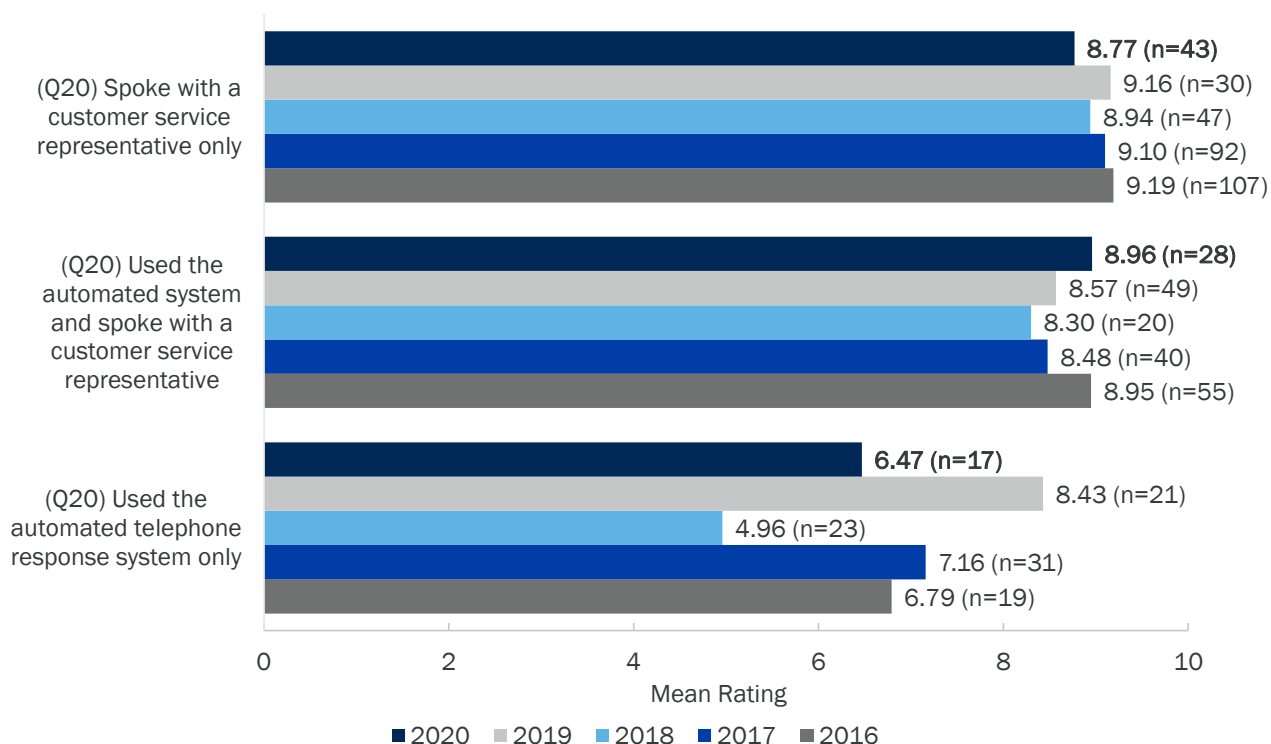
Note: Only those respondents who said they called the utility in the past 12 months were asked this question.

Significant Differences – Prior Years to 2020

- In 2020, meeting customers' needs during phone calls is rated significantly lower by respondents who said they used the automated telephone response system only (Q21) than in 2019.

Significant Chi-Squares – 2020

The method used to complete the most recent call to the utility (Q20) is rated higher by respondents who:

- Report their 2019 total pre-tax household income to be less than $75,000 (Q36).

- Meeting customers' needs during phone calls (Q21) is rated higher by respondents who:

- Report experiencing fewer power outages lasting MORE than one minute in the past 12 months (Q8);

- Report experiencing their most recent outage lasting MORE than one minute prior to the third quarter of 2020 (Q9);

- Report their LONGEST outage in the past 12 months that lasted more than one minute was between one to five hours in length (Q12); and

- Said they completed their most recent call to the utility by speaking with a customer service representative only or by speaking with a customer service representative and using the automated telephone response system (Q20).

Significant Correlation Coefficients – 2020

Meeting the customers' needs during their most recent phone call to the utility (Q21) significantly correlates with:

- Providing electric service overall (Q1);

- Providing reliable electric service (Q2);

- Keeping your electric rates reasonable (Q3);

- Keeping the electric system, including power lines and equipment, in good working order (Q4);

- Minimizing the number of power interruptions lasting LESS than one minute (Q5);

- Minimizing the number of power outages lasting MORE than one minute (Q7);

- Providing information about extended outages (Q16);

- Being accessible during an outage (Q17);

- Trying hard to preserve the appearance of the trees they trim (Q29); and

- Providing a bill that makes it easy to tell how much the current month's charges are (Q32).

5.4   Understanding of Services

We asked survey respondents to rate their familiarity with various utility services. The findings are presented below.

5.4.1   Overall Findings: Q22, Q23, Q24, Q25, and Q26

Sixty-eight percent of residential respondents said they are very familiar with Mt. Carmel Public Utility Co. trimming trees to reduce the occurrence of power outages. See Figure 9 below for a complete breakdown of respondent familiarity with various utility services.

Figure 9. Familiarity with Utility Services
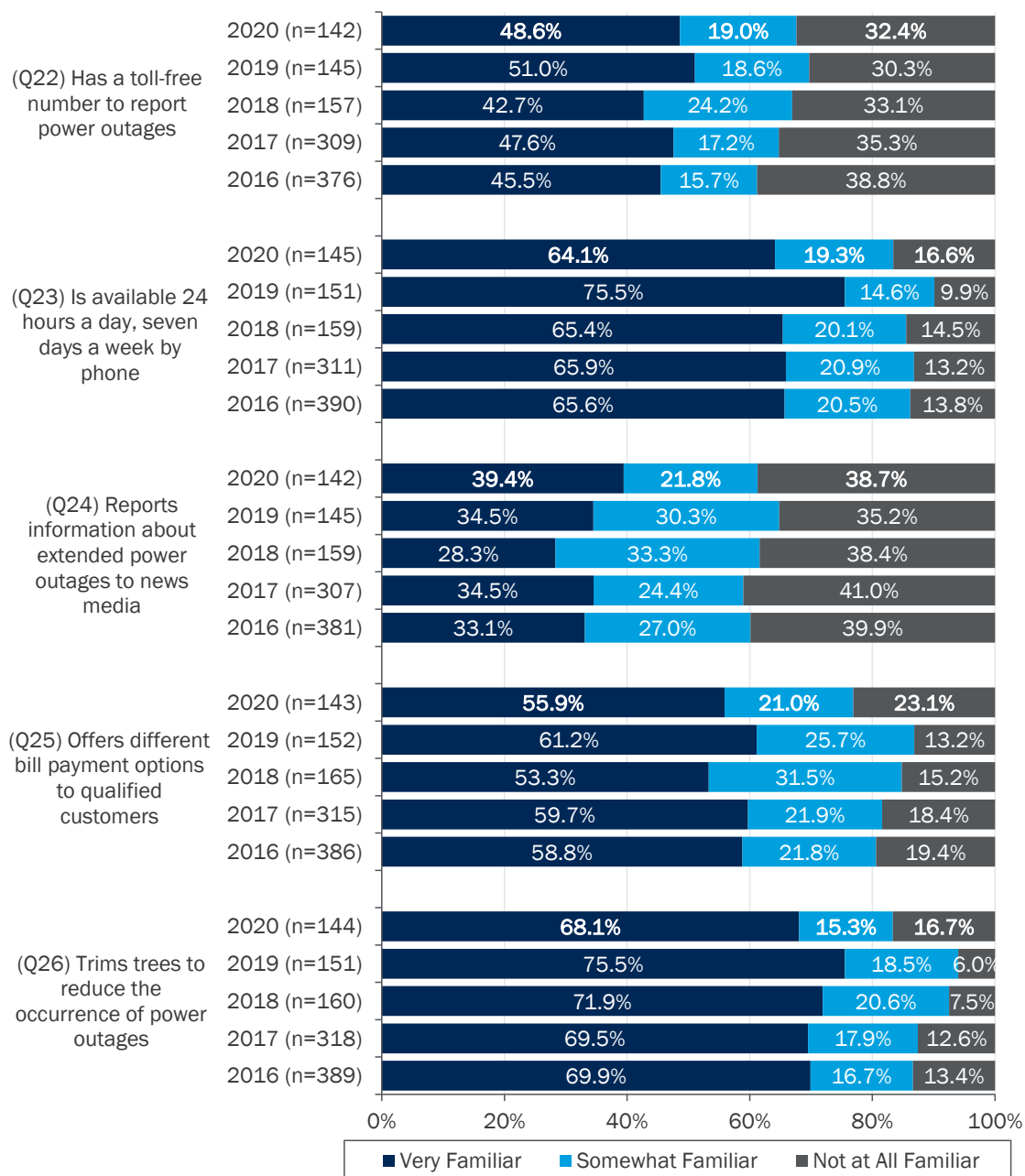
Significant Differences – Prior Years to 2020

- In 2020, significantly fewer respondents than in 2019 said they are VERY FAMILIAR with Mt. Carmel Public Utility Co. being available 24 hours a day 7 days a week by phone in the event of a power outage (Q23).

- In 2020, significantly more respondents than in 2018 said they are VERY FAMILIAR with the utility reporting information about extended power outages to the news media to keep customers informed (Q24).

- In 2020, significantly fewer respondents than in 2018 said they are SOMEWHAT FAMILIAR with the utility offering different bill payment options to qualified customers (Q25), while significantly more respondents than in 2019 said they are NOT AT ALL FAMILIAR with this service.

- In 2020, significantly more respondents than in 2019 and 2018 said they are NOT AT ALL FAMILIAR with Mt. Carmel Public Utility Co. trimming trees to reduce the occurrence of power outages (Q26).

Significant Chi-Squares – 2020

Respondents' familiarity with the utility reporting information about extended power outages to the news media to keep customers informed (Q24) varies significantly by:

- Respondent 2019 total pre-tax household income (Q36). However, no clear pattern of response can be determined from the data.

- Familiarity with the utility trimming trees to reduce the occurrence of outages (Q26) varies significantly by:

- Years lived at the current address (Q35). However, no clear pattern of response can be determined from the data; and

- Respondent 2010 total pre-tax household income (Q36). However, no clear pattern of response can be determined from the data.

5.5 Tree Trimming Performance

We asked those residential respondents who are either very familiar or somewhat familiar with their utility trimming trees to reduce the occurrence of power outages three questions about Mt. Carmel Public Utility Co.'s tree trimming performance. Findings are presented below.

5.5.1 Overall Findings: Q27, Q28, and Q29

On average, respondents give Mt. Carmel Public Utility Co. a rating of 8.70 for trimming trees and clearing branches away from power lines to reduce power outages. In addition, respondents give Mt. Carmel Public Utility Co. an average rating of 8.16 for communicating the need for trimming trees while they give the utility an average rating of 7.59 for trying hard to preserve the appearance of the trees they trim (See Figure 10).

Figure 10. Mean Ratings for Tree Trimming Performance
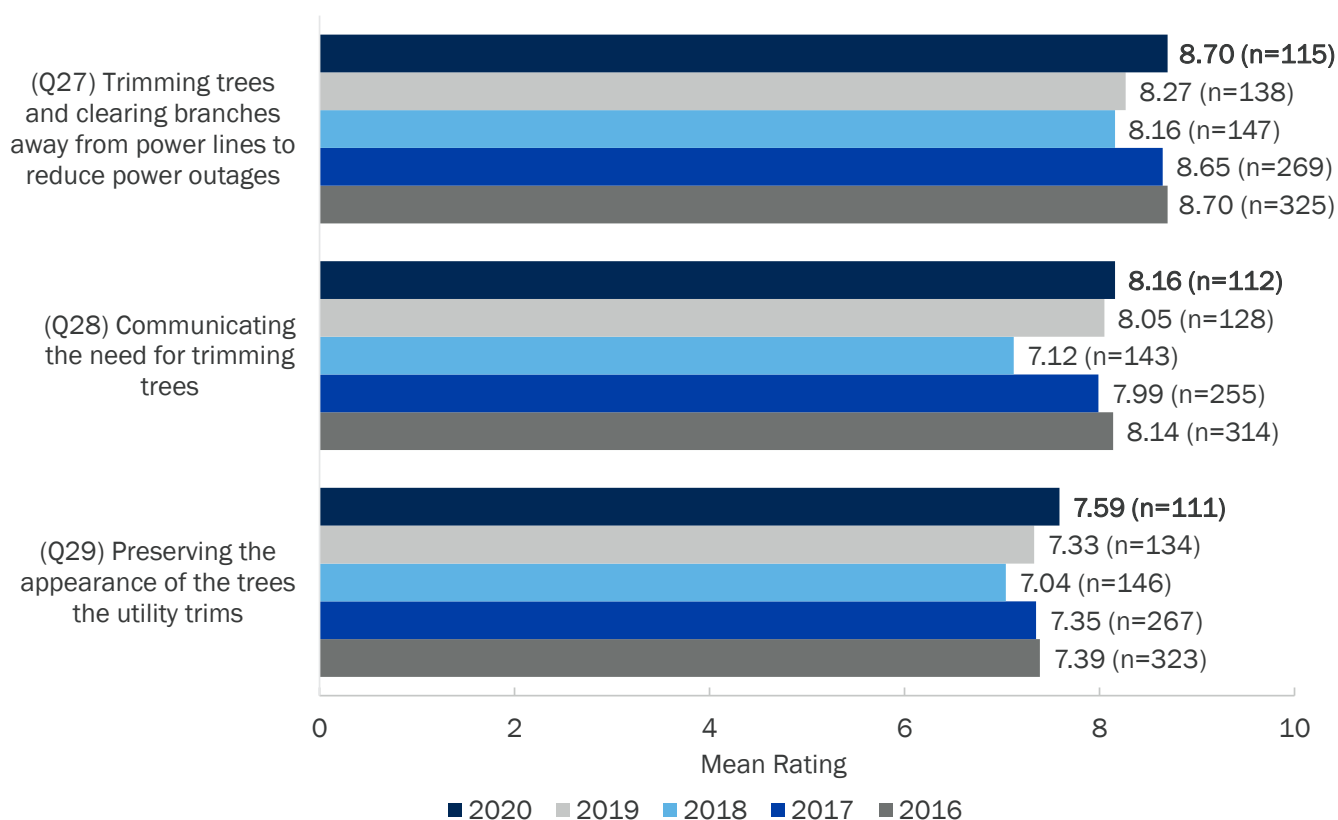
Note: Only respondents who said they are very or somewhat familiar with the utility trimming trees to reduce the occurrence of power outages were asked these questions.

Significant Differences – Prior Years to 2020

■ Communicating the need for trimming trees (Q28) was rated significantly higher in 2020 than in 2018.

Significant Chi-Squares – 2020

Trimming trees and clearing branches away from power lines to reduce power outages (Q27) is rated higher by respondents who:

- Report experiencing fewer power outages lasting MORE than one minute in the past 12 months (Q8);

- Said they are VERY FAMILIAR with the utility offering different bill payment options to qualified customers (Q25);

- Said they are VERY FAMILIAR with the utility trimming trees to reduce the occurrence of power outages (Q26); and

- Report themselves to be age 65 or older (Q33).

In addition, ratings for trimming trees and cleating branches away from power lines to reduce power outages (Q27) vary significantly by:

- The number of power outages lasting LESS than one minute (Q6). However, no clear pattern can be determined from the data.

Communicating the need for trimming trees (Q28) is rated higher by respondents who:

- Report they are VERY FAMILIAR or SOMEWHAT FAMILIAR with the utility having a toll-free number to report power outages (Q22);

- Said they are VERY FAMILIAR with the utility being available 24 hours a day, seven days a week by phone in the event of a power outage (Q23);

- Said they are VERY FAMILIAR or SOMEWHAT FAMILIAR with the utility reporting information about extended power outages to the news media to keep customers informed (Q24);

- Said they are VERY FAMILIAR with the utility offering different bill payment options to qualified customers (Q25); and

- Said they are VERY FAMILIAR with the utility trimming trees to reduce the occurrence of power outages (Q26).

Trying hard to preserve the appearance of the trees they trim (Q29) is rated higher by respondents who:

- Report experiencing fewer power outages lasting MORE than one minute in the past 12 months (Q8).

In addition, ratings for the utility trying hard to preserve the appearance of the trees they trim (Q29) vary significantly by:

- The length in hours of the SHORTEST outage lasting more than one minute (Q11). However, no clear pattern of response can be determined from the data;

- Report they are VERY FAMILIAR with the utility having a toll-free number to report power outages (Q22);

- Said they are VERY FAMILIAR with the utility being available 24 hours a day, seven days a week by phone in the event of a power outage (Q23);

- Said they are VERY FAMILIAR with the utility reporting information about extended power outages to the news media to keep customers informed (Q24); and

- Said they are VERY FAMILIAR with the utility trimming trees to reduce the occurrence of power outages (Q26).

Significant Correlation Coefficients – 2020

Trimming trees and clearing branches away from power lines to reduce the occurrence of power outages (Q27) significantly correlates with:

- Providing electric service overall (Q1);
- Providing reliable electric service (Q2);
- Keeping the electric system, including power lines and equipment, in good working order (Q4);
- Minimizing the number of power interruptions lasting LESS than one minute (Q5);
- Restoring electric service at your residence when outages occur (Q15);
- Providing information about extended outages (Q16);
- Being accessible during an outage (Q17);
- Communicating the need for trimming trees (Q28);
- Trying hard to preserve the appearance of the trees they trim (Q29); and
- Providing a bill that makes it easy to tell how much the current month's charges are (Q32).

Communicating the need for trimming trees (Q28) significantly correlates with:

- Providing electric service overall (Q1);
- Keeping your electric rates reasonable (Q3);
- Keeping the electric system, including power lines and equipment, in good working order (Q4);
- Restoring electric service at your residence when outages occur (Q15);
- Providing information about extended outages (Q16);
- Trimming trees and clearing branches away from power lines to reduce the occurrence of power outages (Q27); and
- Trying hard to preserve the appearance of the trees they trim (Q29).

Trying hard to preserve the appearance of the trees they trim (Q29) significantly correlates with:

- Keeping the electric system, including power lines and equipment, in good working order (Q4);
- Providing information about extended outages (Q16);
- Being accessible during an outage (Q17);
- Meeting the customers' needs during the most recent phone call (Q21);
- Trimming trees and clearing branches away from power lines to reduce the occurrence of power outages (Q27); and
- Communicating the need for trimming trees (Q28).

5.6   Billing

We asked survey respondents if they receive a bill from Mt. Carmel Public Utility Co. at home and if they personally see or handle this bill. Those respondents who receive and handle this utility bill were asked to rate the utility's performance on providing a bill that makes it easy to tell how much the current month's charges are. The findings are presented below.

5.6.1   Overall Findings: Q30 and Q31

The vast majority of residential respondents (93 percent) said they receive a bill from Mt. Carmel Public Utility Company at their home, and 94 percent of these respondents said they personally see or handle this bill.

Significant Differences – Prior Years to 2020

- In 2020, significantly less respondents than in 2018 said receive a bill from Mt. Carmel Public Utility Company at their home (Q30).
- In 2020, significantly less respondents than in 2019 said that they personally see or handle the utility bill (Q31).

Significant Chi-Squares – 2020

Personally seeing or handling the utility bill (Q31) varies significantly by:

- The number of people (including the respondent) who live in the respondent's household (Q37). However, no clear pattern of response can be determined from the data.

5.6.2 Overall Findings: Q32

Respondents who receive and handle the bill from Mt. Carmel Public Utility Co. give the utility a mean rating of 8.98 for providing a bill that makes it easy to tell how much the current month's charges are (See Figure 11).

Figure 11. Mean Ratings for Billing
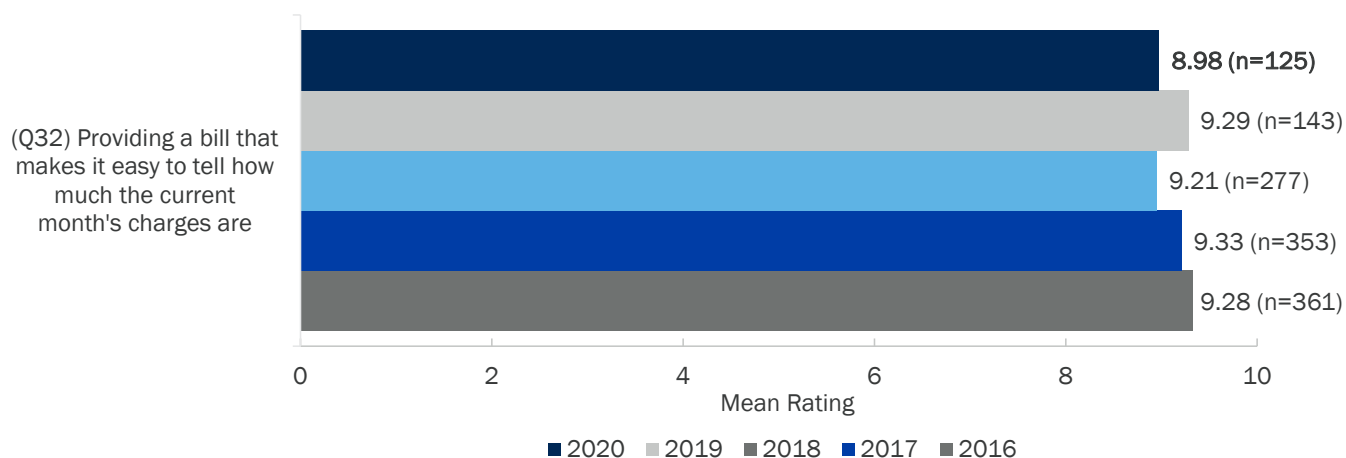
Note: Only respondents who said they receive a bill from the utility at this location and personally see or handle this bill were asked this question.

Significant Differences – Prior Years to 2020

- In 2020, providing a bill that makes it easy to tell how much the current month's charges are (Q32) is rated significantly lower than in 2016.

Significant Chi-Squares – 2020

Providing a bill that makes it easy to tell how much the current month's charges are (Q32) varies significantly by:

- The number of power interruptions lasting LESS than one minute in the past 12 months (Q6). However, no clear pattern can be determined from the data;

- The timing (month and day) of the most recent outage lasting MORE than one minute in the past 12 months (Q9). However, no clear pattern can be determined from the data;

- Whether or not they have experienced any loss or damage due to electrical outages or other electrical problems in the last 12 months (Q13). However, no clear pattern can be determined from the data;

- Respondent familiarity with the utility having a toll-free number to report power outages (Q22). However, no clear pattern can be determined from the data;

- Respondent awareness of the utility being available 24 hours a day, seven days a week by phone in the event of a power outage (Q23). However, no clear pattern can be determined from the data; and

- Respondent familiarity with the utility trimming trees to reduce the occurrence of power outages (Q26). However, no clear pattern can be determined from the data.

Significant Correlation Coefficients – 2020

Providing a bill that makes it easy to tell how much the current month's charges are (Q32) significantly correlates with:

- Report experiencing fewer power outages lasting MORE than one minute in the past 12 months (Q8);

- Report their LONGEST outage in the past 12 months that lasted more than one minute was 12 hours or less in length (Q12);

- Said they have NOT experienced any loss or damage due to electrical outages or other electrical problems in the last 12 months (Q13); and

- Said they are VERY FAMILIAR with the utility being available 24 hours a day, seven days a week by phone in the event of a power outage (Q23).

5.7   Demographics

We asked survey respondents several demographic questions in order to group their answers with those of others taking part in the survey. The findings are presented below.

5.7.1   Overall Findings: Q33

Thirty-four percent of survey respondents said they are 65 and older (See Figure 12).

Figure 12. Respondent Age
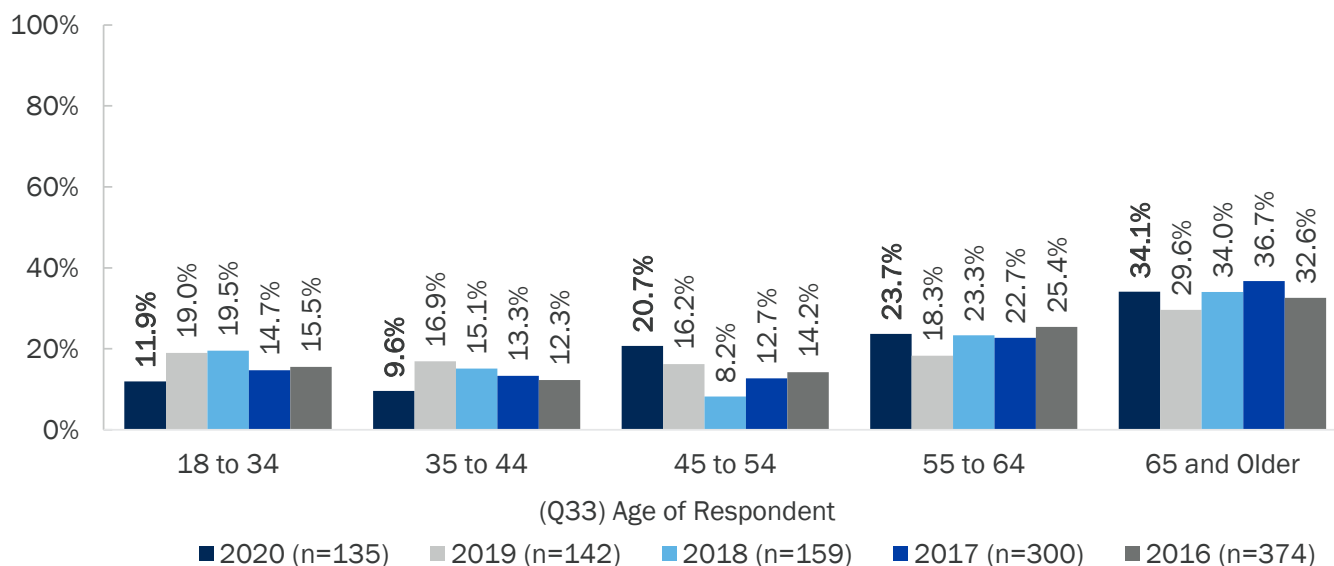
Significant Differences – Prior Years to 2020

■ In 2020, significantly more respondents than in 2018 and 2017 fall within the 45 to 54 year old age group (Q33).

5.7.2   Overall Findings: Q34

Eighty-three percent of residential respondents said they either own their own home or are currently buying a home. Seventeen percent said they currently rent or lease their residence (See Figure 13).

Figure 13. Ownership of Residence
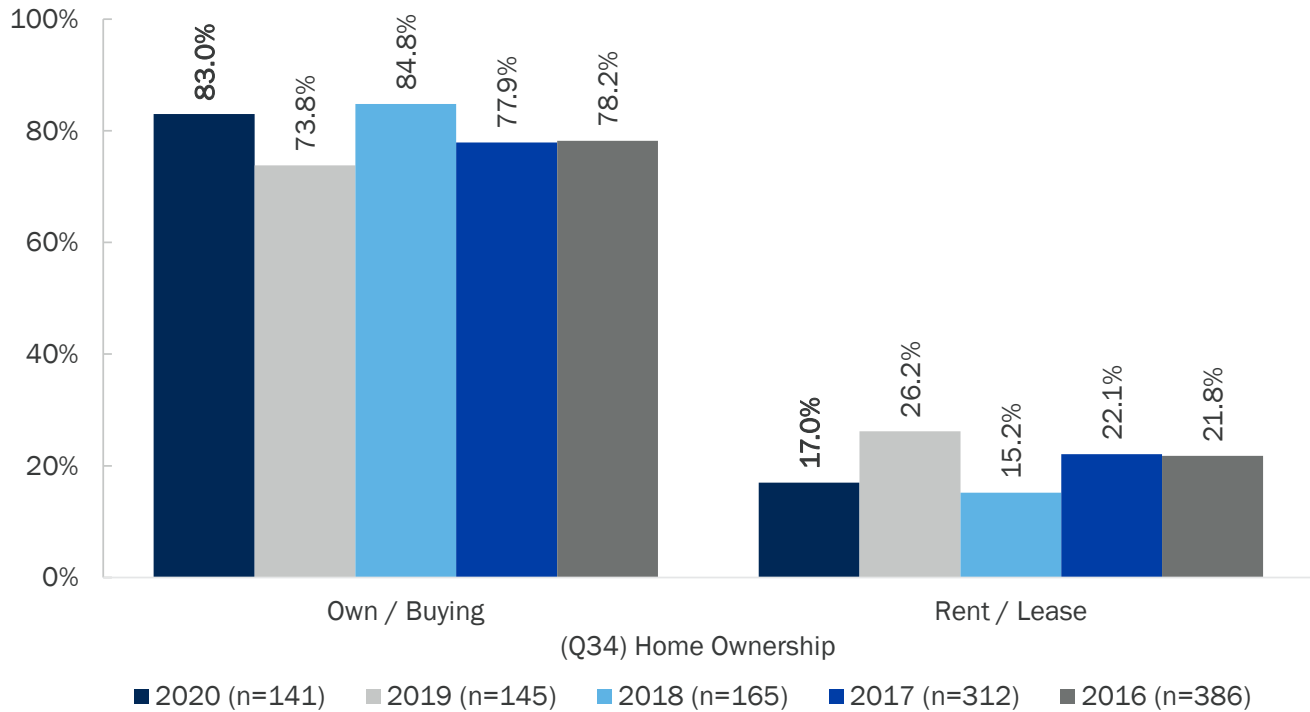
Significant Differences – Prior Years to 2020

- No significant differences were observed.

5.7.3   Overall Findings: Q35

Fifty percent of residential respondents said they have lived in their current residence up to ten years. Seventeen percent of respondents said they have lived in their current residence for 11 to 20 years while 33 percent said they have lived in their current residence for more than 20 years (See Figure 14).

Figure 14. Years Lived in Current Residence
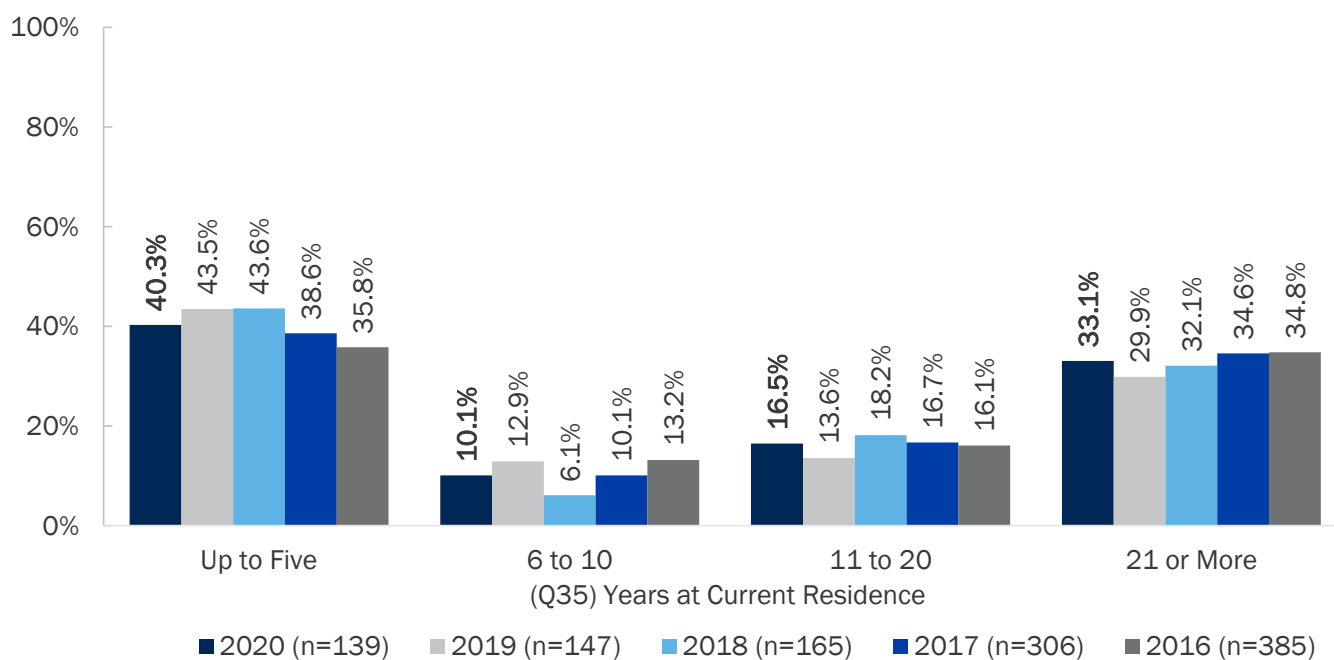
Significant Differences – Prior Years to 2020

- No significant differences were observed.

5.7.4 Overall Findings: Q36

Forty-six percent of residential respondents said their household income is less than $50,000 per year (Figure 15).

Figure 15. Respondent Household Income
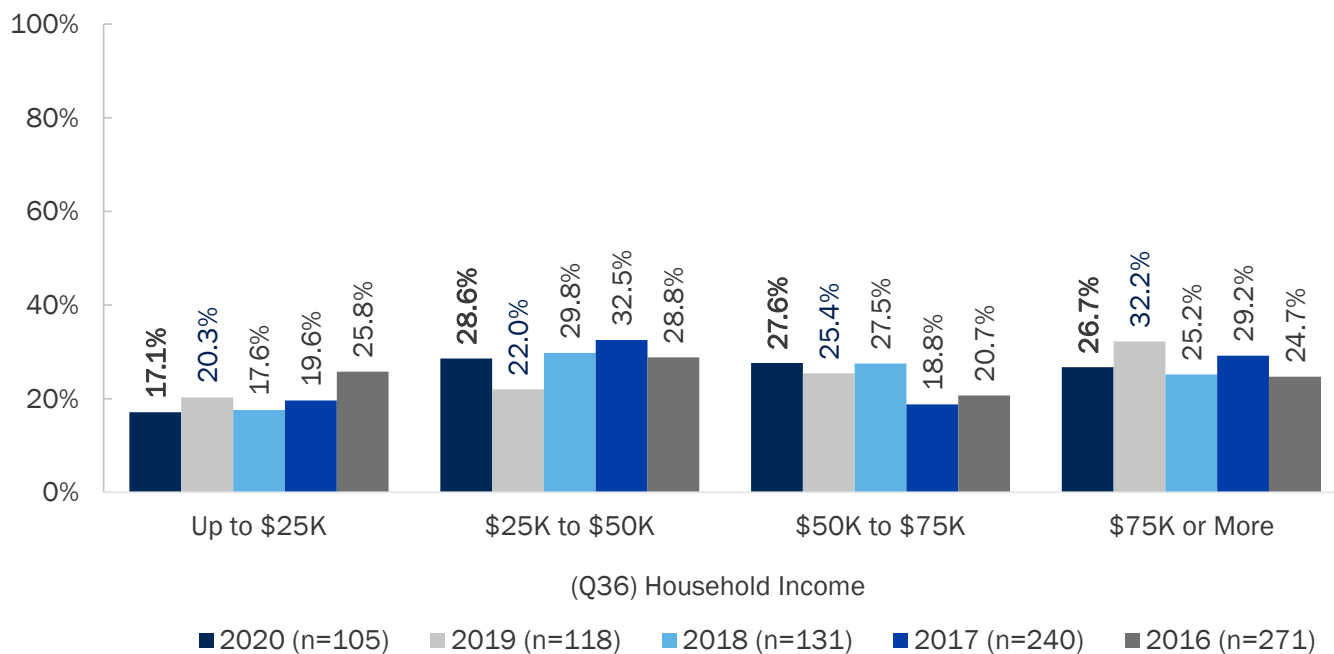
(Q36) Household Income

■ 2020 (n=105) ■ 2019 (n=118) ■ 2018 (n=131) ■ 2017 (n=240) ■ 2016 (n=271)

Significant Differences – Prior Years to 2020

■ No significant differences were observed.

5.7.5   Overall Findings: Q37

Seventy-two percent of respondents said there is either one or two people living in their household while 10 percent said there are three people living in their household. Eighteen percent of respondents said there are four or more people living in their household (See Figure 16).

Figure 16. People Living in Respondent Households
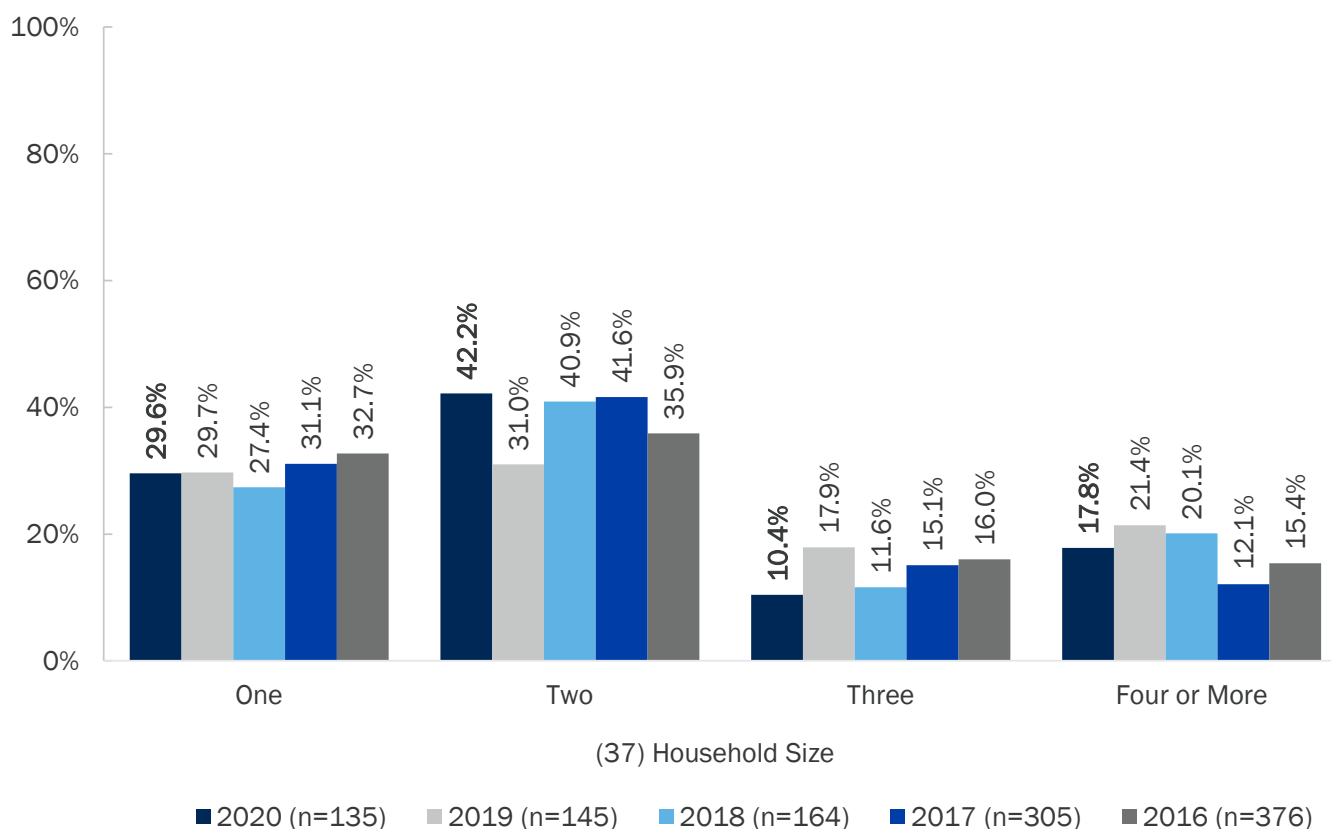
(37) Household Size

■ 2020 (n=135)   ■ 2019 (n=145)   ■ 2018 (n=164)   ■ 2017 (n=305)   ■ 2016 (n=376)

Significant Differences – Prior Years to 2020

■ No significant differences were observed.

5.7.6 Overall Findings: Q40

Fifty-five percent of residential respondents are male (See Figure 17).

Figure 17. Respondent Gender
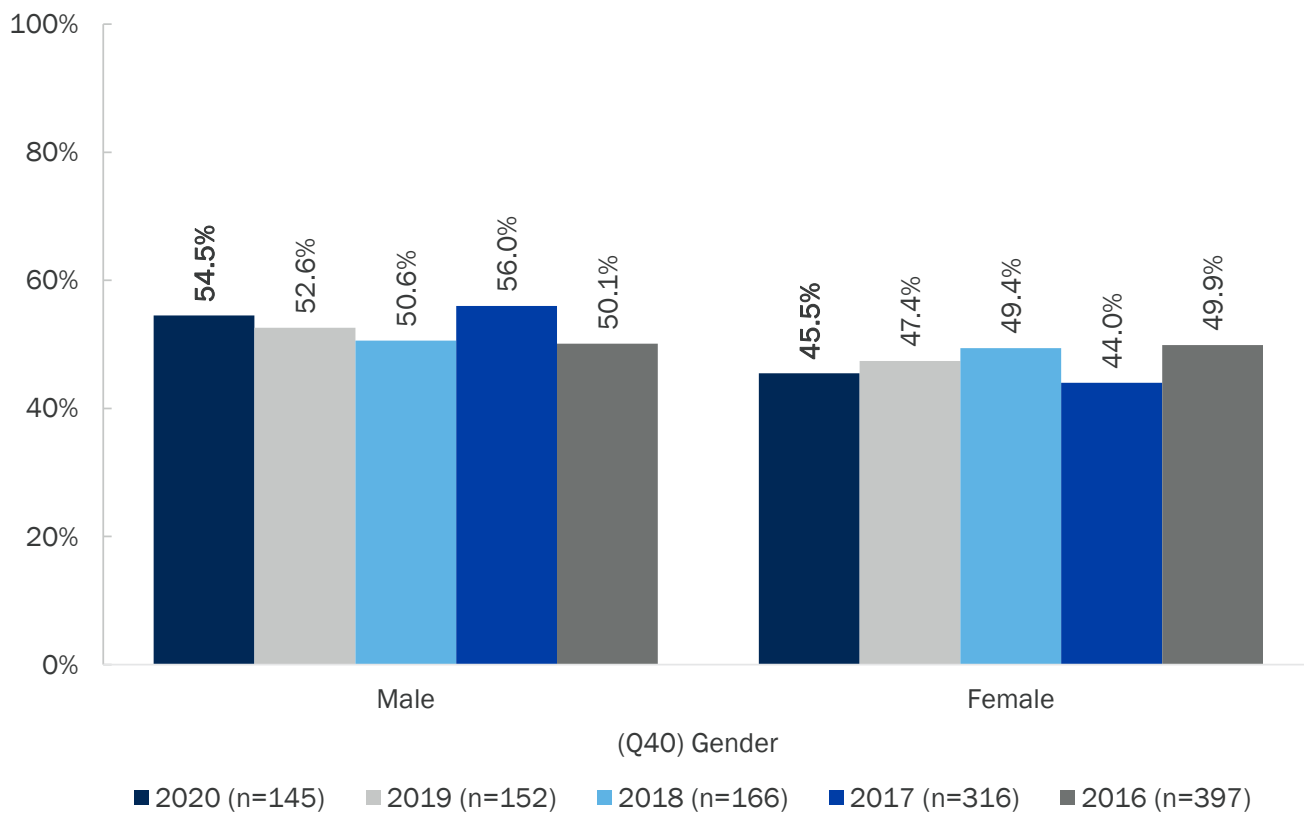
Significant Differences – Prior Years to 2020

- No significant differences were observed.

6. Non-Residential Executive Summary

This section of the report is divided into seven major subsections that present the findings of the 32 telephone surveys conducted with Mt. Carmel Public Utility Co.'s non-residential customers. The subsections are in the order they appear in the survey instrument (see Appendix A).

- Subsection "6.1" provides ratings of the utility's overall electric service, their ability to provide reliable service, and their performance on keeping electric rates reasonable.

- Subsection "6.2" discusses Mt. Carmel Public Utility Co.'s reliability in detail including the length and timing of recent outages.

- Subsection "6.3" presents non-residential customer opinions of utility services including restoration of power, keeping the public informed, and being accessible.

- Subsection "6.4" discusses non-residential respondents' familiarity with various utility services.

- Subsection "6.5" presents customer opinions of utility tree trimming efforts.

- Subsection "6.6" discusses the receipt, handling, and ease of use of Mt. Carmel Public Utility Co.'s billing statements.

- Finally, subsection "6.7" presents respondent firmographic information including the number of employees at this respondent's location, the number of years in business at this location, and respondent gender.

All survey questions asked of non-residential respondents are discussed within this Non-Residential Executive Summary. There are three types of questions contained in the survey: rating questions, yes/no questions, and categorical questions. In each of the seven subsections which follow, overall question results from the 2020 study are either discussed or graphically presented and then significant findings for those questions are outlined. In addition, overall question results from the 2016, 2017, 2018 and 2019 studies are graphically presented and significant differences between 2020 and previous study years are outlined.

Rating Questions. All rating questions use a zero to 10 scale, where zero means the utility is doing a poor job and 10 means the utility is doing an excellent job. As required in Illinois Administrative Code 411.350, all rating questions underwent two broad statistical tests—Pearson Product Moment Correlation and Chi-Square.

- **Pearson Product Moment Correlation Coefficients.** Significant relationships between a particular rating question and all other rating questions were determined through the use of the Pearson Product Moment Correlation Coefficient. Only those rating question combinations that resulted in a correlation coefficient with an absolute value of 0.5 or higher are discussed within this Executive Summary.

- **Chi-Square.** Significant relationships between a particular rating question and all yes/no, categorical, and firmographic questions were determined through the use of the Chi-Square test. Only those Chi-Squares with a significance of 0.05 or less are discussed within this Executive Summary.

- **Independent T-test for Means.** Upon finding a significant Chi-Square, the research team utilized a standard independent t-test for means to provide further insight into the nature or direction of the relationship between a rating question and a yes/no, categorical, or firmographic question. This additional testing is not required as a part of the ICC rules, but is provided to give the reader further insight into the data without being unduly burdensome. When reviewing the t-test results, the research team looked for a "general pattern of response" rather than statistical significance within every dimension of the cross-tabulation table. For instances where the t-test resulted in no statistically

significant differences or consistent/logical pattern across segment means, the relationship between the two cross-tabbed variables is described as having "no general pattern of response." Otherwise, the direction of the relationship is indicated.

Yes/No and Categorical Questions. As required in Illinois Administrative Code 411.350, all yes/no and categorical questions underwent a single statistical test—Chi Square.

- **Chi-Square.** Significant relationships between a particular yes/no or categorical question and all firmographic questions were determined through the use of the Chi-Square test. Only those Chi-Squares with a significance of 0.05 or less are discussed within this Executive Summary.

- **Independent Z-test for Percentages.** Upon finding a significant Chi-Square, the research team utilized a standard independent z-test for percentages to provide further insight into the nature or direction of the relationship between the yes/no or categorical question and a firmographic question. This additional testing is not required as a part of the ICC rules, but is provided to give the reader further insight into the data without being unduly burdensome. When reviewing the z-test results, the research team looked for a "general pattern of response" rather than statistical significance within every dimension of the cross-tabulation table. For instances where the z-test resulted in no statistically significant differences or consistent/logical pattern across segment proportions, the relationship between the two cross-tabbed variables is described as having "no general pattern of response." Otherwise, the direction of the relationship is indicated.

Significant Differences from 2020 to previous study years. As required in Illinois Administrative Code 411.355, all responses from the current year (2020) were compared to historical study responses (2016, 2017, 2018 and 2019). To determine significant relationships, two statistical tests were performed—independent t-test for means and independent z-test for proportions. Consistent with the overall analysis plan, only significant differences between 2020 and prior results are discussed. It is important to note that this report highlights all 2020 versus prior year comparisons where "statistically" significant differences are found. While many of these differences may not be large enough to be "meaningful" or "substantive" we, nevertheless, report them. The research team decided not to select a "substantive" significance level (which refers to an absolute difference between 2020 and prior results that must be achieved before a change is considered meaningful) because, while there is precedent for such a choice in customer satisfaction literature, setting a "substantive" significance level is fundamentally a subjective process. To keep the process completely objective, we have reported on all "statistically" significant differences. However, some of the "statistical" differences highlighted in this report (with respect to 2020 versus prior year comparisons) may not be meaningful because the absolute difference is small.

- **Independent T-test for Means.** Significant relationships between 2020 and prior results for all rating questions were determined through the use of a standard independent t-test for means.

- **Independent Z-test for Percentages.** Significant relationships between 2020 and prior results for all yes/no and categorical questions were determined through the use of a standard independent z-test for percentages.

An explanation of the tables contained in the appendices (Chi-Square tables and t-test/z-test tables) and the statistical tests used in this study (correlation coefficients, Chi-Square tests, t-tests, and z-tests) are located in Appendix B. Correlation coefficients of all non-residential rating questions by all other rating questions are located in Appendix C. Required cross tabulations, statistical and t-test/z-test tables for all non-residential survey questions are available in electronic format (file names: Appendix E – Mt Carmel Non-Residential Chi Square.doc and Appendix E – Mt Carmel Non-Residential Z Test & T Test.doc, respectively) while a chart of question combinations with significant Chi-Squares is located in Appendix E. Required cross tabulations

comparing 2020 and prior results for all non-residential survey questions are also available in electronic format (file name: Appendix F – Mt Carmel Non-Residential Comparison 2016-2020.doc).

6.1 Overall Satisfaction

We asked survey respondents to rate the job Mt. Carmel Public Utility Co. does on providing electric service overall. In addition, we asked respondents to rate the reliability of electric service they receive and to rate how well Mt. Carmel Public Utility Co. keeps their electric rates reasonable. Key findings are summarized below.

6.1.1 Overall Findings: Q1, Q2, and Q3

Respondents give Mt. Carmel Public Utility Co. an average rating of 9.06 for providing reliable electric service. In addition, respondents give Mt. Carmel Public Utility Co. an average rating of 9.19 for providing electric service overall while they give the utility an average rating of 6.48 for keeping electric rates reasonable (Figure 18).

Figure 18. Mean Ratings for Overall Satisfaction
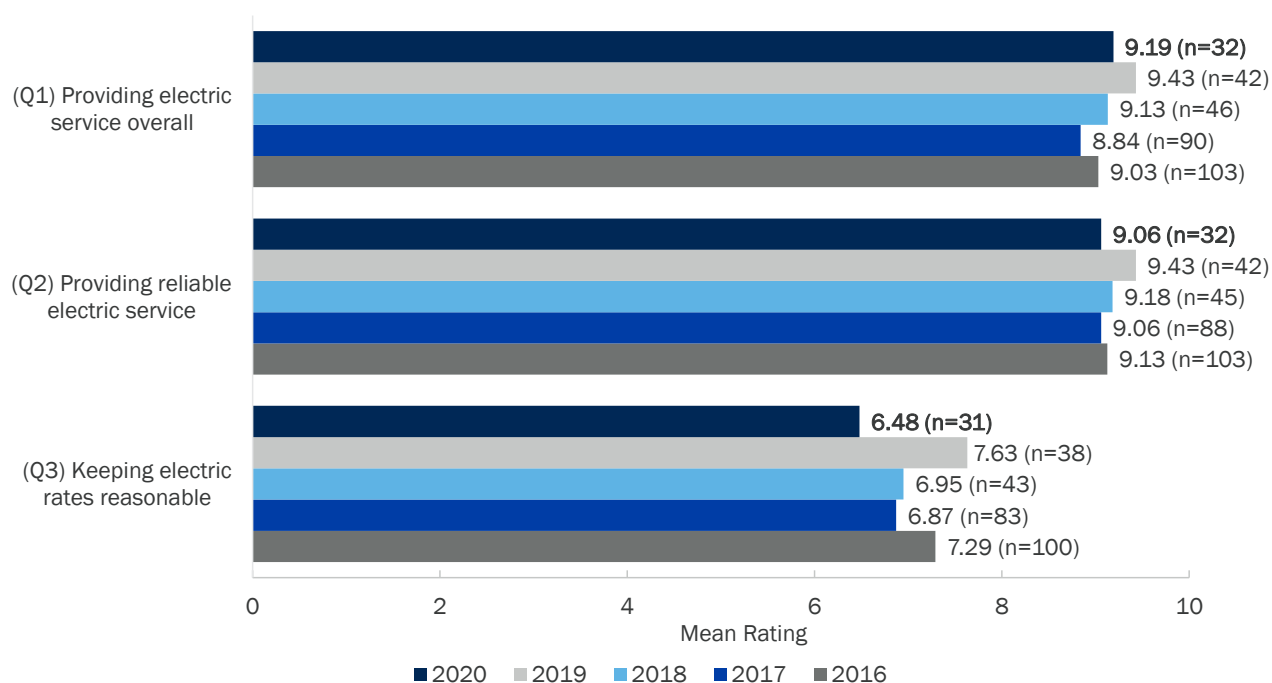
Significant Differences – Prior Years to 2020

- No significant differences were observed.

Significant Chi-Squares – 2020

Ratings for providing electric service overall (Q1) is rated higher by respondents who:

- Said they are VERY FAMILIAR or SOMEWHAT FAMILIAR with the utility trimming trees to reduce the occurrence of power outages (Q26).

Ratings for providing electric service overall (Q1) vary significantly by:

- The number of power interruptions lasting LESS than one minute in the past 12 months (Q6). However, no clear pattern of response can be determined from the data; and

- Whether or not they have experienced any loss or damage due to electrical outages or other electrical problems in the last 12 months (Q13). However, no clear pattern of response can be determined from the data.

Providing reliable electric service (Q2) is rated higher by respondents who:

- Said they are VERY FAMILIAR or SOMEWHAT FAMILIAR with the utility trimming trees to reduce the occurrence of power outages (Q26).

Providing reliable electric service (Q2) vary significantly by:

- The number of power interruptions lasting LESS than one minute in the past 12 months (Q6). However, no clear pattern of response can be determined from the data.

Ratings for keeping electric rates reasonable (Q3) is rated higher by respondents who:

- Report they are VERY FAMILIAR or SOMEWHAT FAMILIAR with the utility having a toll-free number to report power outages (Q22).

In addition, ratings for keeping electric rates reasonable (Q3) vary significantly by:

- The length in hours of the SHORTEST outage lasting more than one minute (Q11). However, no clear pattern of response can be determined from the data.

Significant Correlation Coefficients – 2020

Providing electric service overall (Q1) significantly correlates with:

- Providing reliable electric service (Q2);
- Keeping the electric system, including power lines and equipment, in good working order (Q4);
- Minimizing the number of power interruptions lasting LESS than one minute (Q5);
- Minimizing the number of power outages lasting MORE than one minute (Q7);
- Restoring electric service at your business when outages occur (Q15);
- Providing information about extended outages (Q16);
- Being accessible during an outage (Q17);
- Communicating the need for trimming trees (Q28);
- Trying hard to preserve the appearance of the trees they trim (Q29); and
- Providing a bill that makes it easy to tell how much the current month's charges are (Q32).

Providing reliable electric service (Q2) significantly correlates with:

- Providing electric service overall (Q1);
- Keeping the electric system, including power lines and equipment, in good working order (Q4);
- Minimizing the number of power interruptions lasting LESS than one minute (Q5);

- Minimizing the number of power outages lasting MORE than one minute (Q7);

- Restoring electric service at your business when outages occur (Q15);

- Providing information about extended outages (Q16);

- Being accessible during an outage (Q17);

- Meeting the customers' needs during the most recent phone call (Q21);

- Communicating the need for trimming trees (Q28);

- Trying hard to preserve the appearance of the trees they trim (Q29); and

- Providing a bill that makes it easy to tell how much the current month's charges are (Q32).

Keeping electric rates reasonable (Q3) significantly correlates with:

- Keeping the electric system, including power lines and equipment, in good working order (Q4);

- Minimizing the number of power outages lasting MORE than one minute (Q7);

- Trimming trees and clearing branches away from power lines to reduce the occurrence of power outages (Q27); and

- Providing a bill that makes it easy to tell how much the current month's charges are (Q32).

6.2   Reliability Performance

Respondents were asked to rate Mt. Carmel Public Utility Co.'s performance on electric reliability. In addition, respondents were asked how many power interruptions lasting less than and more than one minute they have experienced in the past 12 months and how long these power interruptions lasted. Key findings are summarized below.

6.2.1   Overall Findings: Q4, Q5, and Q7

Respondents give Mt. Carmel Public Utility Co. a mean rating of 9.00 for keeping the electric system in good working order. In addition, respondents give the utility a mean rating of 8.84 for minimizing the number of power interruptions lasting MORE than one minute while they give the utility a mean rating of 8.77 for minimizing the number of power outages lasting LESS than one minute. (See Figure 19).

Figure 19. Mean Ratings for Reliability Performance

Significant Differences – Prior Years to 2020

- No significant differences were observed.

Significant Chi-Squares – 2020

Ratings for minimizing the number of power outages lasting LESS than one minute (Q5) vary significantly by:

- The number of power interruptions lasting LESS than one minute in the past 12 months (Q6); However, no clear pattern of response can be determined from the data; and

- The length in hours of the LONGEST outage lasting more than one minute (Q12). However, no clear pattern of response can be determined from the data.

Minimizing the number of power outages lasting MORE than one minute (Q7) is rated higher by respondents who:

- Report they are VERY FAMILIAR or SOMEWHAT FAMILIAR with the utility having a toll-free number to report power outages (Q22).

In addition, ratings for minimizing the number of power outages lasting MORE than one minute (Q7) vary significantly by:

- The number of power interruptions lasting LESS than one minute in the past 12 months (Q6). However, no clear pattern of response can be determined from the data.

Significant Correlation Coefficients – 2020

Keeping the electric system, including power lines and equipment, in good working order (Q4) significantly correlates with:

- Providing electric service overall (Q1);
- Providing reliable electric service (Q2);
- Keeping your electric rates reasonable (Q3);
- Minimizing the number of power interruptions lasting LESS than one minute (Q5);
- Minimizing the number of power outages lasting MORE than one minute (Q7);
- Being accessible during an outage (Q17);
- Meeting the customers' needs during the most recent phone call (Q21);
- Communicating the need for trimming trees (Q28);
- Trying hard to preserve the appearance of the trees they trim (Q29); and
- Providing a bill that makes it easy to tell how much the current month's charges are (Q32).

Minimizing the number of power interruptions lasting LESS than one minute (Q5) significantly correlates with:

- Providing electric service overall (Q1);
- Providing reliable electric service (Q2);
- Keeping the electric system, including power lines and equipment, in good working order (Q4);
- Minimizing the number of power outages lasting MORE than one minute (Q7);
- Restoring electric service at your business when outages occur (Q15);
- Providing information about extended outages (Q16);
- Being accessible during an outage (Q17);
- Meeting the customers' needs during the most recent phone call (Q21);
- Communicating the need for trimming trees (Q28);

- Trying hard to preserve the appearance of the trees they trim (Q29); and

- Providing a bill that makes it easy to tell how much the current month's charges are (Q32).

Minimizing the number of power outages lasting MORE than one minute (Q7) significantly correlates with:

- Providing electric service overall (Q1);

- Providing reliable electric service (Q2);

- Keeping your electric rates reasonable (Q3);

- Keeping the electric system, including power lines and equipment, in good working order (Q4);

- Minimizing the number of power interruptions lasting LESS than one minute (Q5);

- Restoring electric service at your business when outages occur (Q15);

- Providing information about extended outages (Q16);

- Being accessible during an outage (Q17);

- Meeting the customers' needs during the most recent phone call (Q21); and

- Trimming trees and clearing branches away from power lines to reduce the occurrence of power outages (Q27).

6.2.2   Overall Findings: Q6 and Q8

In the past 12 months, 31 percent of all non-residential respondents said they have experienced no power interruptions lasting LESS than one minute while 31 percent said they have experienced one or two and another 38 percent said they have experienced three or more outages (See Figure 20).

Figure 20. Number of Outages (LESS than one minute)
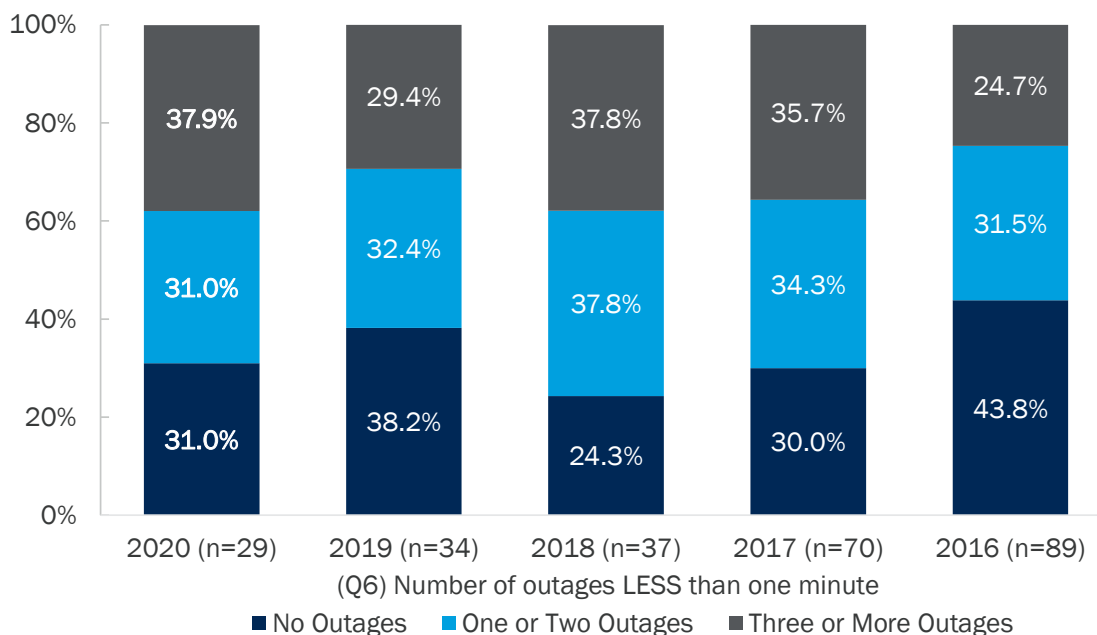
In the past 12 months, 28 percent of all non-residential respondents said they have experienced no power outages lasting MORE than one minute while 47 percent said they have experienced one or two and 25 percent of respondents said they have experienced three or more outages (See Figure 21).

Figure 21. Number of Outages (MORE than one minute)
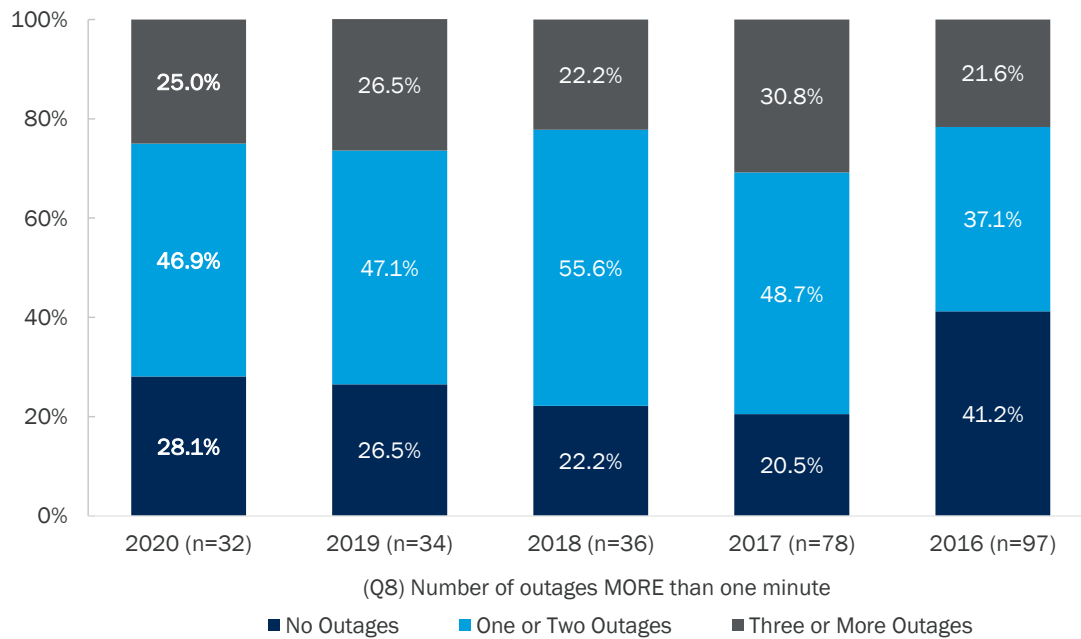
(Q8) Number of outages MORE than one minute

■ No Outages   ■ One or Two Outages   ■ Three or More Outages

Significant Differences – Prior Years to 2020

■ No significant differences were observed.

Significant Chi-Squares – 2020

■ No significant chi-squares were observed.

6.2.3   Overall Findings: Q9

Of those respondents who have experienced an outage lasting MORE than one minute in the past 12 months, 45 percent said the most recent outage occurred during the third quarter of 2020 while 25 percent said the most recent outage occurred during the second quarter of 2020. See Figure 22 **Error! Reference source not found.** for a complete breakdown of when respondents said their last outage lasting MORE than one minute occurred.

Figure 22. Most Recent Outage
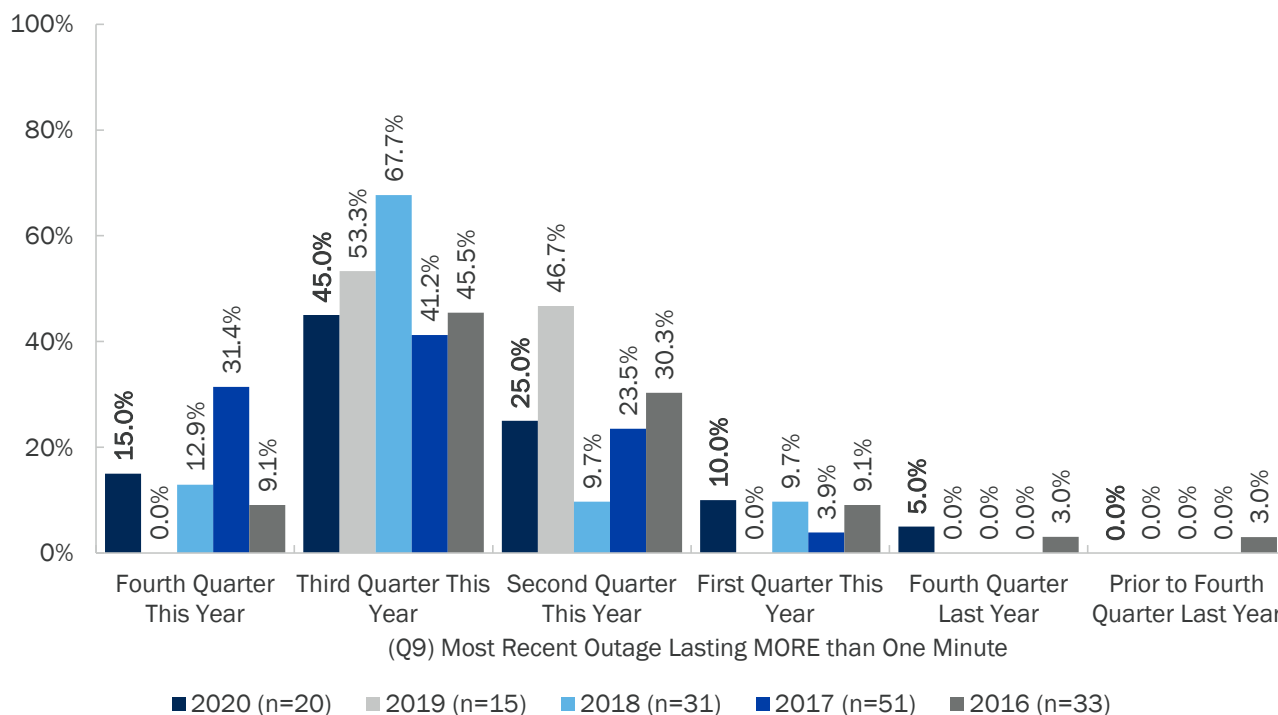
Significant Differences – Prior Years to 2020

- No significant differences were observed.

Significant Chi-Squares – 2020

- No significant chi-squares were observed.

6.2.4   Overall Findings: Q10, Q11, and Q12

Thirty-six percent of respondents who experienced a power outage lasting MORE than one minute during the past 12 months said the most recent power outage lasted for less than one hour. See Figure 23 **Error! Reference source not found.** for a complete breakdown of respondents who experienced a power outage lasting MORE than one minute in the past 12 months.

Sixty-nine percent of the respondents who experienced more than one outage lasting MORE than one minute during the past 12 months said the shortest of these outages lasted less than one hour. See Figure 23 for a complete breakdown of the shortest outages respondents experienced lasting MORE than one minute in the past 12 months.

Eight percent of respondents who experienced more than one outage lasting MORE than one minute during the past 12 months said the longest of these outages lasted less than one hour. See **Error! Reference source not found.** for a complete breakdown of the longest outages respondents experienced lasting MORE than one minute in the past 12 months.

Figure 23. Length of Outages
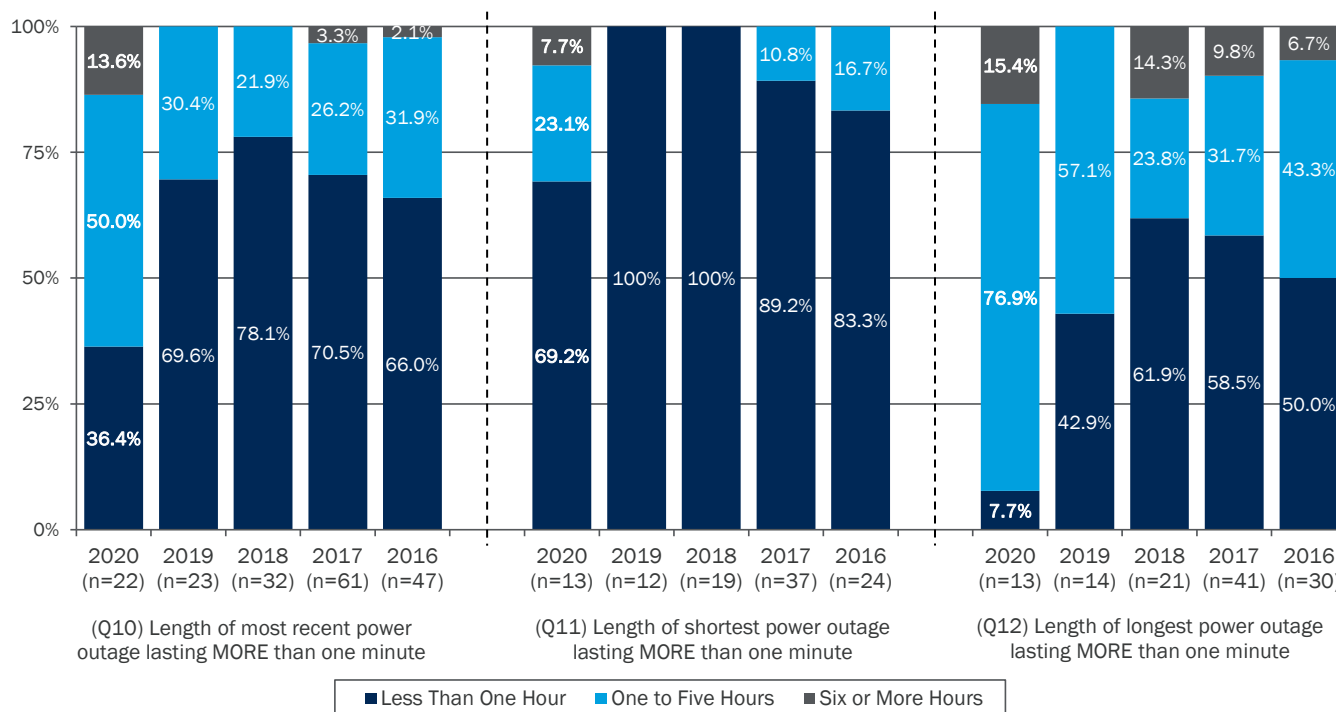
Note: Only those respondents who said they experienced an outage lasting MORE than one minute in the past 12 months were asked for the length of their most recent power outage.

Significant Differences – Prior Years to 2020

■   In 2020, significantly fewer respondents than in all the prior years reported a power outage lasting MORE than one minute that lasted for less than one hour (Q10).

- In 2020, significantly more respondents than in 2017 and 2018 reported a power outage that lasted one to five hours (Q10).

- In 2020, significantly fewer respondents than in 2018 and 2019 report their shortest power outage lasting MORE than one minute during the past 12 months (Q11) was less than one hour.

- In 2020, significantly fewer respondents than in prior years report their longest power outage lasting MORE than one minute during the past 12 months (Q11) was less than one hour.

- In 2020, significantly more respondents than in 2016, 2017, and 2018 said the longest power outage they experienced lasting MORE than one minute during the past 12 months (Q12) was one to five hours.

Significant Chi-Squares – 2020

- No significant chi-squares were observed.

6.2.5   Overall Findings: Q13 and Q14

In the past 12 months, ninety-one percent of all non-residential respondents said they experienced no loss or damage due to electrical outages or other electrical problems. Sixty-seven percent of those respondents who did experience loss or damages experienced loss of electrical equipment or accessories. (See Table 4).

Table 4. Loss or Damage Suffered Due to Electric Outages or Related Problems

(Q14) Loss or Damage Suffered	Percent of Respondents			
	2020	2019	2018	2017
Loss of electrical equipment or accessories	66.7%	100.0%	100.0%	50.0%
Interruption of business	33.3%	0.0%	0.0%	100.0%
Loss of perishables	0.0%	0.0%	0.0%	0.0%
Other	0.0%	0.0%	0.0%	0.0%
(n)	3	3	2	2

Note: Respondents were permitted to mention more than one type of loss or damage suffered. Only those respondents who said they suffered a loss or damage due to an electrical outage or related problem were asked this question.

Significant Differences – Prior Years to 2020

■   No significant differences were observed.

Significant Chi-Squares – 2020

■   No significant chi squares were observed.

6.3   Customer Service Performance

In this subsection we discuss the utility's performance on customer service-related items including the restoration of power, accessibility during outages, providing information about outages, and meeting customers' needs during service calls.

6.3.1   Overall Findings: Q15, Q16, and Q17

Respondents give Mt. Carmel Public Utility Co. a mean rating of 9.03 for restoring electric service at their business when outages occur. In addition, respondents give Mt. Carmel Public Utility Co. a mean rating of 8.30 for being accessible during an outage while they give the utility a mean rating of 7.90 for providing information about extended outages (See Figure 24 **Error! Reference source not found.**).

Figure 24. Mean Ratings for Customer Service Performance
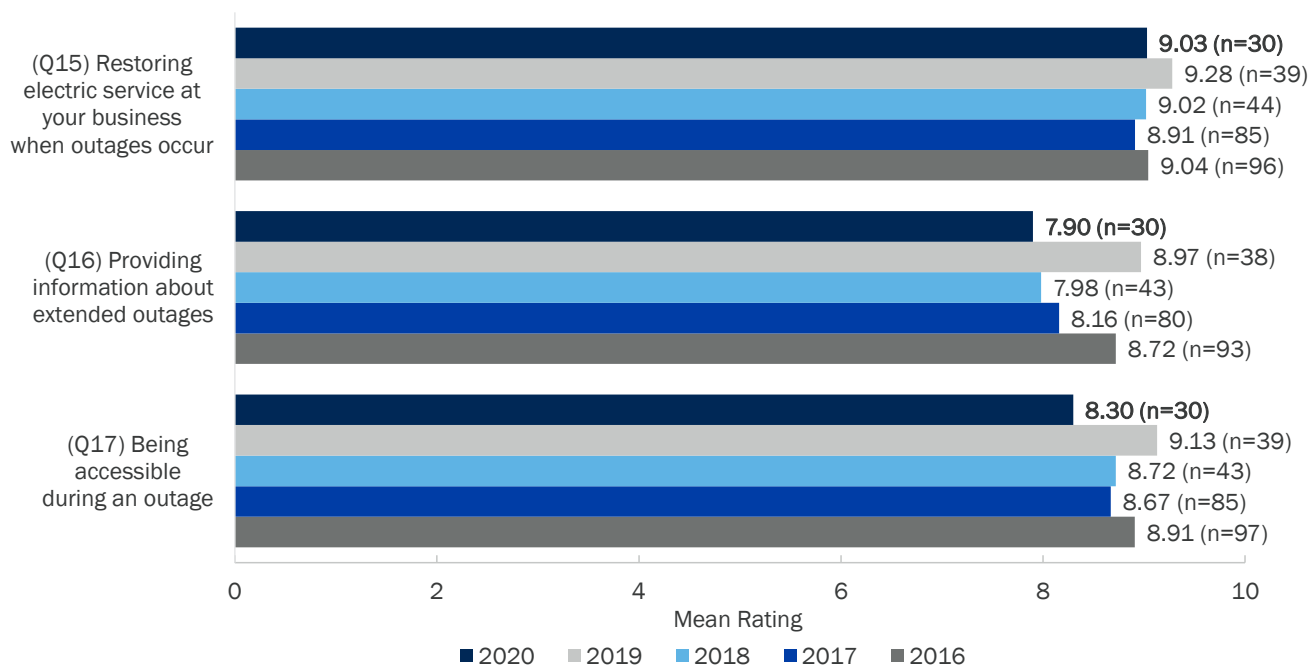
Significant Differences – Prior Years to 2020

- Providing information about extended outages (Q16) is rated significantly lower in 2020 than in 2019.

Significant Chi-Squares – 2020

Ratings for restoring electric service at your business when outages occur (Q15) vary significantly by:

- Whether or not they have experienced any loss or damage due to electrical outages or other electrical problems in the last 12 months (Q13). However, no clear pattern of response can be determined from the data; and

- The method used to complete most recent call to the utility (Q20). However, no clear pattern of response can be determined from the data.

Additionally, ratings for the utility providing information about extended outages (Q16) vary significantly by:

■ The number of power interruptions lasting LESS than one minute in the past 12 months (Q6). However, no clear pattern of response can be determined from the data;

■ Whether or not they have experienced any loss or damage due to electrical outages or other electrical problems in the last 12 months (Q13). However, no clear pattern of response can be determined from the data;

■ Respondent awareness of the utility being available 24 hours a day, seven days a week by phone in the event of a power outage (Q23). However, no clear pattern of response can be determined from the data; and

■ Respondent familiarity with the utility trimming trees to reduce the occurrence of power outages (Q26). However, no clear pattern of response can be determined from the data.

Ratings for the utility being accessible during at outage (Q17) vary significantly by:

■ The number of power interruptions lasting LESS than one minute in the past 12 months (Q6). However, no clear pattern of response can be determined from the data.

Significant Correlation Coefficients – 2020

Restoring electric service at your business when outages occur (Q15) significantly correlates with:

■ Providing electric service overall (Q1);

■ Providing reliable electric service (Q2);

■ Minimizing the number of power interruptions lasting LESS than one minute (Q5);

■ Minimizing the number of power outages lasting MORE than one minute (Q7);

■ Providing information about extended outages (Q16); and

■ Meeting the customers' needs during the most recent phone call (Q21).

Providing information about extended outages (Q16) significantly correlates with:

■ Providing electric service overall (Q1);

■ Providing reliable electric service (Q2);

■ Minimizing the number of power interruptions lasting LESS than one minute (Q5);

■ Minimizing the number of power outages lasting MORE than one minute (Q7);

■ Restoring electric service at your business when outages occur (Q15);

■ Being accessible during an outage (Q17);

■ Meeting the customers' needs during the most recent phone call (Q21); and

■ Trimming trees and clearing branches away from power lines to reduce the occurrence of power outages (Q27).

Being accessible during an outage (Q17) significantly correlates with:

■ Providing electric service overall (Q1);

- Providing reliable electric service (Q2);

- Keeping the electric system, including power lines and equipment, in good working order (Q4);

- Minimizing the number of power interruptions lasting LESS than one minute (Q5);

- Minimizing the number of power outages lasting MORE than one minute (Q7);

- Providing information about extended outages (Q16);

- Meeting the customers' needs during the most recent phone call (Q21);

- Communicating the need for trimming trees (Q28);

- Trying hard to preserve the appearance of the trees they trim (Q29); and

- Providing a bill that makes it easy to tell how much the current month's charges are (Q32).

6.3.2   Overall Findings: Q18 and Q19

Fifty-eight percent of all non-residential respondents said they tried to reach Mt. Carmel Public Utility Co. by phone in the past 12 months. Fifty percent of these respondents called to report a power problem such as an outage or a downed wire. See Table 5 below for a complete breakdown of the reasons respondents cited for their most recent call to the utility.

Table 5. Reason for Making Most Recent Call to the Utility

(Q19) Reason for Most Recent Call	Percent of Respondents			
	2020	2019	2018	2017
Report a power problem, outage, or downed wire	50.0%	50.0%	58.6%	56.8%
Make a payment arrangement or other billing question	16.7%	25.0%	24.1%	22.7%
Stop, start, or transfer service	16.7%		--	4.5%
Get information about locations, programs, or services	--	4.2%	3.4%	11.4%
Other	16.7%	12.5%	13.8%	4.5%
(n)	18	24	29	44

Note: Only those respondents who said they called the utility in the past 12 months were asked this question.

Significant Differences – Prior Years to 2020

- No significant differences observed.

Significant Chi-Squares – 2020

- No significant chi-squares were observed.

6.3.3   Overall Findings: Q20 and Q21

Of those respondents who tried to reach Mt. Carmel Public Utility Co. in the past 12 months, 56 percent said they spoke to a live customer service representative only. Thirty-three percent said they spoke to a live customer service representative and used the automated telephone response system, and another 11 percent said they used the automated telephone response system only.

Respondents who only spoke with a customer service representative give Mt. Carmel Public Utility Co. an average rating of 9.20. Respondents who used the automated system and spoke with a customer service representative give the utility an average rating of 9.67 for meeting their needs during the phone call, while respondents who only used the automated telephone response system give the utility an average rating of 5.00 (See Figure 25).

Figure 25. Mean Ratings for Meeting Customers' Needs during Phone Calls
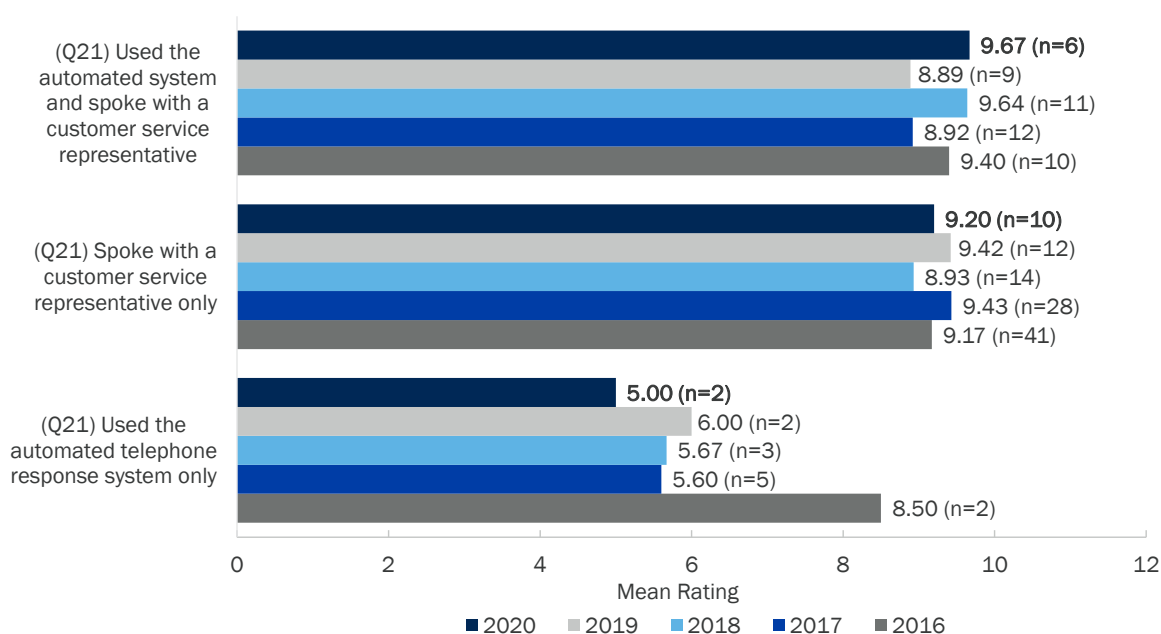
Note: Only those respondents who said they called the utility in the past 12 months were asked this question.

Significant Differences – Prior Years to 2020

 - No significant differences were observed.

Significant Chi-Squares – 2020

How well the utility met customer's needs during the call (Q21) is rated higher by respondents who:

 - Said they completed their most recent call to the utility by speaking with a customer service representative only or by speaking with a customer service representative and using the automated telephone response system (Q20).

How well the utility met customer's needs during the call (Q21) varies significantly by:

- The length of the last power outage lasting MORE than one minute in the past 12 months (Q10). However, no clear pattern of response can be determined from the data; and

- The length in hours of the SHORTEST outage lasting more than one minute (Q11). However, no clear pattern of response can be determined from the data.

Significant Correlation Coefficients – 2020

Meeting the customers' needs during their most recent phone call to the utility (Q21) significantly correlates with:

- Providing reliable electric service (Q2);

- Keeping the electric system, including power lines and equipment, in good working order (Q4);

- Minimizing the number of power interruptions lasting LESS than one minute (Q5);

- Minimizing the number of power outages lasting MORE than one minute (Q7);

- Restoring electric service at your business when outages occur (Q15);

- Providing information about extended outages (Q16);

- Being accessible during an outage (Q17);

- Communicating the need for trimming trees (Q28);

- Trying hard to preserve the appearance of the trees they trim (Q29); and

- Providing a bill that makes it easy to tell how much the current month's charges are (Q32).

6.4 Understanding of Services

We asked survey respondents to rate their familiarity with various utility services. The findings are presented below.

6.4.1 Overall Findings: Q22, Q23, Q24, Q25, and Q26

Seventy-five percent of non-residential respondents said they are very familiar with their utility trimming trees to reduce the occurrence of power outages. See Figure 26 **Error! Reference source not found.** for a complete breakdown of respondent familiarity with various utility services.

Figure 26. Familiarity with Utility Services
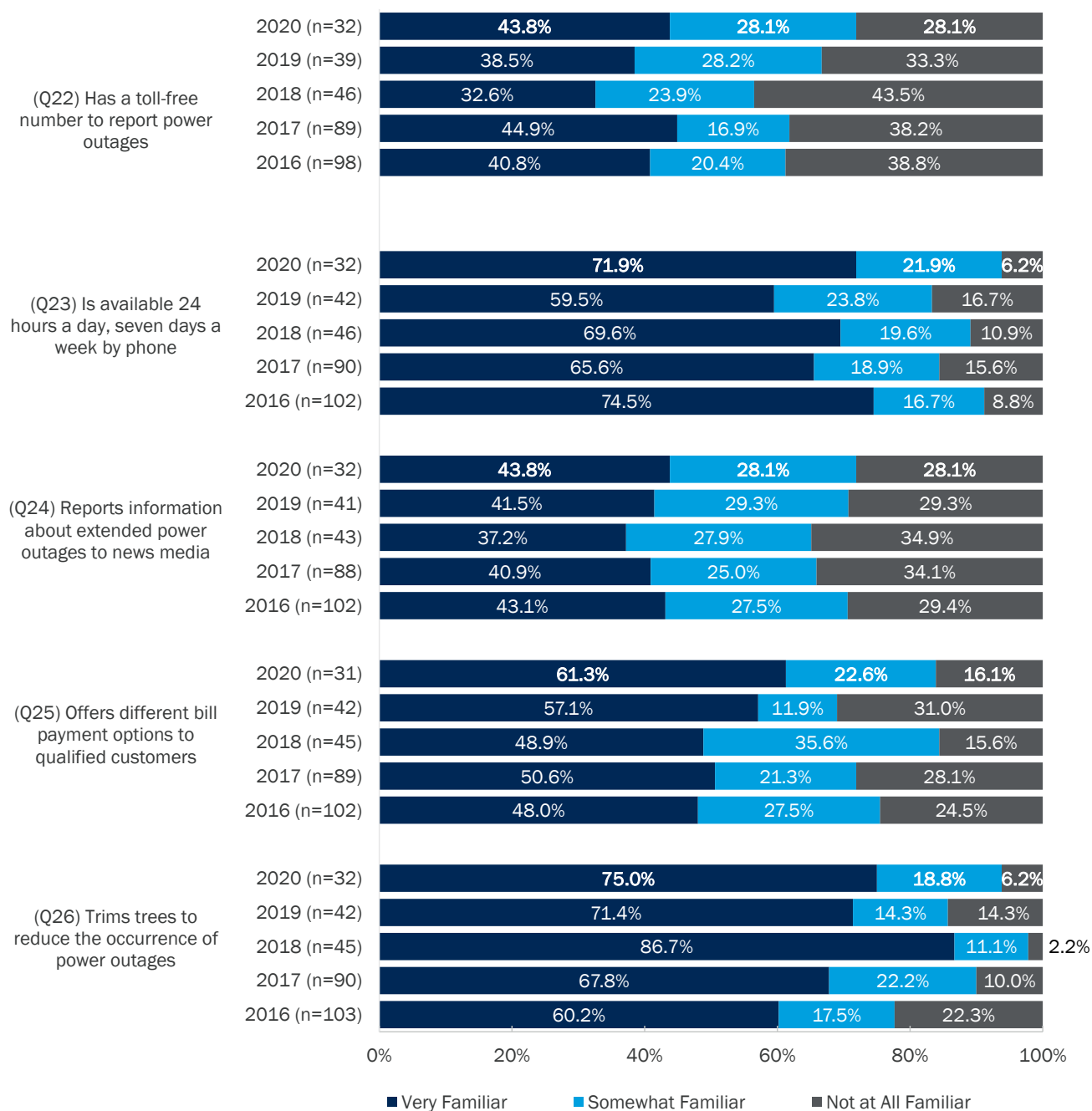
Significant Differences – Prior Years to 2020

■ In 2020, significantly fewer respondents said they are NOT AT ALL FAMILIAR with their utility trimming trees to reduce the occurrence of power outages (Q26) than in 2016.

Significant Chi-Squares – 2020

Awareness of the utility's toll-free number to report power outages (Q22) significantly varies by:

- Years the respondent's company has conducted business at this location (Q39). However, no clear pattern of response can be determined from the data.

Awareness that the utility provides different bill payment options to qualified customers (Q25) is rated higher by respondents who:

- Report the number of employees, both full and part time, employed at their location is from 26 to 100 (Q38).

6.5　Tree Trimming Performance

We asked those non-residential respondents who are either very familiar or somewhat familiar with their utility trimming trees to reduce the occurrence of power outages three questions about Mt. Carmel Public Utility Co.'s tree trimming performance. Findings are presented below.

6.5.1　Overall Findings: Q27, Q28, and Q29

On average, respondents give Mt. Carmel Public Utility Co. a rating of 9.00 for trimming trees and clearing branches away from power lines to reduce power outages. In addition, respondents give Mt. Carmel Public Utility Co. an average rating of 8.62 for communicating the need for trimming trees while they give the utility an average rating of 7.63 for trying hard to preserve the appearance of the trees they trim (See Figure 27).

Figure 27. Mean Ratings for Tree Trimming Performance

Note: Only respondents who said they are very or somewhat familiar with the utility trimming trees to reduce the occurrence of power outages were asked these questions.

Significant Differences – Prior Years to 2020

- No significant differences were observed.

Significant Chi-Squares – 2020

Trimming trees and clearing branches away from power lines to reduce the occurrence of power outages (Q27) is rated higher by respondents who:

- Said they are VERY FAMILIAR or SOMEWHAT FAMILIAR with the utility being available 24 hours a day, seven days a week by phone in the event of a power outage (Q23); and
- Said they are VERY FAMILIAR with the utility trimming trees to reduce the occurrence of power outages (Q26).

In addition, ratings for tree trimming (Q27) varies significantly by:

- The method used to complete most recent call to the utility (Q20). However, no clear pattern of response can be identified from the data;

- Respondent familiarity with the utility offering different bill payment options to qualified customers (Q25). However, no clear pattern of response can be identified from the data;

- Whether the customer receives a bill at their business (Q30). However, no clear pattern of response can be identified from the data; and

- Respondent gender (Q40). However, no clear pattern of response can be identified from the data.

Communicating the need for trimming trees (Q28) is rated higher by respondents who:

- Receive a bill at their business (Q30).

Communicating the need for trimming trees (Q28) vary significantly by:

- Whether or not they have experienced any loss or damage due to electrical outages or other electrical problems in the last 12 months (Q13). However, no clear pattern of response can be determined from the data; and

- The reason for making their most recent call to the utility (Q19). However, no clear pattern of response can be determined from the data.

Preserving the appearance of the trees the utility trims (Q29) is rated higher by respondents who:

- Said they are VERY FAMILIAR or SOMEWHAT FAMILIAR with the utility being available 24 hours a day, seven days a week by phone in the event of a power outage (Q23).

Preserving the appearance of the trees the utility trims (Q29) vary significantly by:

- The length in hours of the LONGEST outage lasting more than one minute (Q12). However, no clear pattern of response can be determined from the data; and

- The reason for making their most recent call to the utility (Q19). However, no clear pattern of response can be determined from the data.

Significant Correlation Coefficients – 2020

Trimming trees and clearing branches away from power lines to reduce the occurrence of power outages (Q27) significantly correlates with:

- Keeping your electric rates reasonable (Q3);

- Minimizing the number of power outages lasting MORE than one minute (Q7); and

- Providing information about extended outages (Q16).

Communicating the need for trimming trees (Q28) significantly correlates with:

- Providing electric service overall (Q1);

- Providing reliable electric service (Q2);

- Keeping the electric system, including power lines and equipment, in good working order (Q4);
- Minimizing the number of power interruptions lasting LESS than one minute (Q5);
- Being accessible during an outage (Q17);
- Meeting the customers' needs during the most recent phone call (Q21);
- Preserving the appearance of the trees the utility trims (Q29); and
- Providing a bill that makes it easy to tell how much the current month's charges are (Q32).

Trying hard to preserve the appearance of the trees they trim (Q29) significantly correlates with:

- Providing electric service overall (Q1);
- Providing reliable electric service (Q2);
- Keeping the electric system, including power lines and equipment, in good working order (Q4);
- Minimizing the number of power interruptions lasting LESS than one minute (Q5);
- Being accessible during an outage (Q17);
- Meeting the customers' needs during the most recent phone call (Q21);
- Communicating the need for trimming trees (Q28); and
- Providing a bill that makes it easy to tell how much the current month's charges are (Q32).

6.6   Billing

We asked survey respondents if they receive a bill from Mt. Carmel Public Utility Co. at their place of business and if they personally see or handle this bill. Those respondents who receive and handle this utility bill were asked to rate the utility's performance on providing a bill that makes it easy to tell how much the current month's charges are. The findings are presented below.

6.6.1   Overall Findings: Q30 and Q31

Ninety-one percent said they receive a bill from Mt. Carmel Public Utility Co. at their business and 97 percent of these respondents said they personally see or handle this bill.

Significant Differences – Prior Years to 2020

- In 2020, significantly more respondents than in 2016 and 2017 said they personally see or handle the utility bill (Q31).

- In 2020, significantly fewer respondents than in 2016 and 2017 said they do not personally see or handle the utility bill (Q31).

Significant Chi-Squares – 2020

- No significant chi-squares were observed.

6.6.2   Overall Findings: Q32

Respondents who receive and handle the bill from Mt. Carmel Public Utility Co. give the utility a mean rating of 9.32 for providing a bill that makes it easy to tell how much the current month's charges are. (See Figure 28)

Figure 28. Mean Ratings for Billing
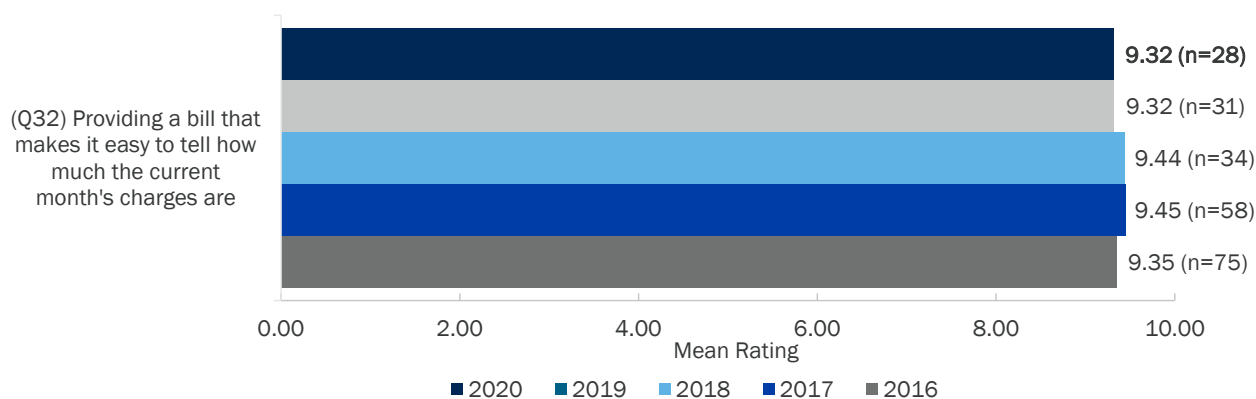
(Q32) Providing a bill that makes it easy to tell how much the current month's charges are

- 9.32 (n=28)
- 9.32 (n=31)
- 9.44 (n=34)
- 9.45 (n=58)
- 9.35 (n=75)

■ 2020 ■ 2019 ■ 2018 ■ 2017 ■ 2016

Note: Only respondents who said they receive a bill from the utility at this location and personally see or handle this bill were asked this question.

Significant Differences – Prior Years to 2020

- No significant differences were observed.

Significant Chi-Squares – 2020

Respondent ratings of the job that Mt Carmel does providing a bill that makes it easy to tell how much the month's charges are (Q32) varies significantly by:

- The number of power interruptions lasting LESS than one minute in the past 12 months (Q6). However, no clear pattern of response can be determined from the data.

Significant Correlation Coefficients – 2020

Providing a bill that makes it easy to tell how much the current month's charges are (Q32) significantly correlates with:

- Providing electric service overall (Q1);
- Providing reliable electric service (Q2);
- Keeping your electric rates reasonable (Q3);
- Keeping the electric system, including power lines and equipment, in good working order (Q4);
- Minimizing the number of power interruptions lasting LESS than one minute (Q5);
- Being accessible during an outage (Q17);
- Meeting the customers' needs during the most recent phone call (Q21);

- ◼ Communicating the need for trimming trees (Q28); and
- ◼ Preserving the appearance of the trees the utility trims (Q29).

6.7 Firmographics

We asked survey respondents several firmographic questions in order to group their answers with those of others taking part in the survey. The findings are presented below.

6.7.1 Overall Findings: Q38

Seventy-two percent of non-residential respondents have between one and four employees at their business location. In addition, 22 percent of respondents have from five to twenty-five employees at their location while 6 percent have twenty-six to one-hundred employees and zero percent have more than one-hundred employees (See Figure 29).

Figure 29. Number of Employees at Respondent's Location
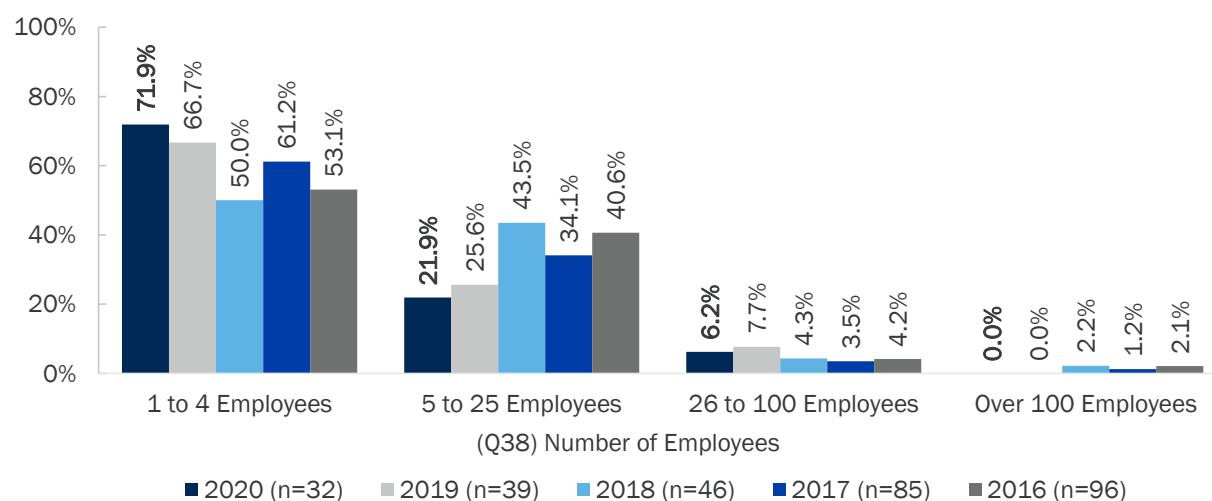
(Q38) Number of Employees

■ 2020 (n=32) ■ 2019 (n=39) ■ 2018 (n=46) ■ 2017 (n=85) ■ 2016 (n=96)

Significant Differences – Prior Years to 2020

In 2020, significantly more respondents than in 2016 and 2018 had 1 to 4 employees.

6.7.2   Overall Findings: Q39

Thirty-eight percent of respondents said they have conducted business at their current location for 10 years or fewer. Nineteen percent of respondents said they have conducted business at their current location for 11 to 20 years, 13 percent have for 21 to 30 years, and 31 percent have for more than 30 years (See Figure 30).

Figure 30. Years Respondent Has Conducted Business at Current Location
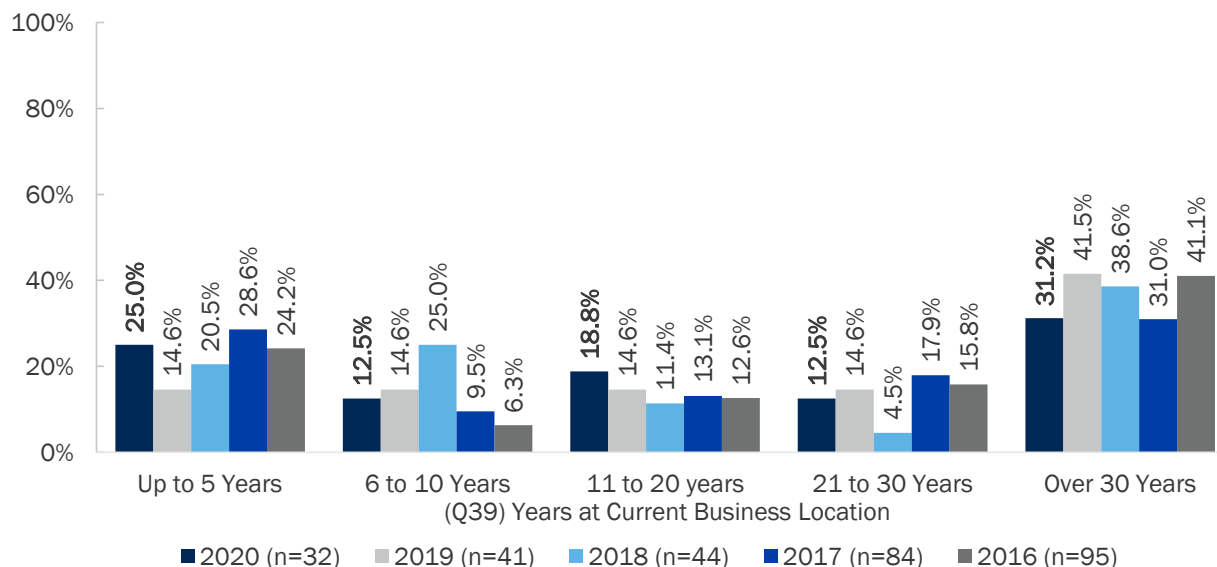
Significant Differences – Prior Years to 2020

- No significant differences were observed.

6.7.3   Overall Findings: Q40

Fifty percent of non-residential respondents are male. (See Error! Reference source not found.**)**

Figure 31. Respondent Gender
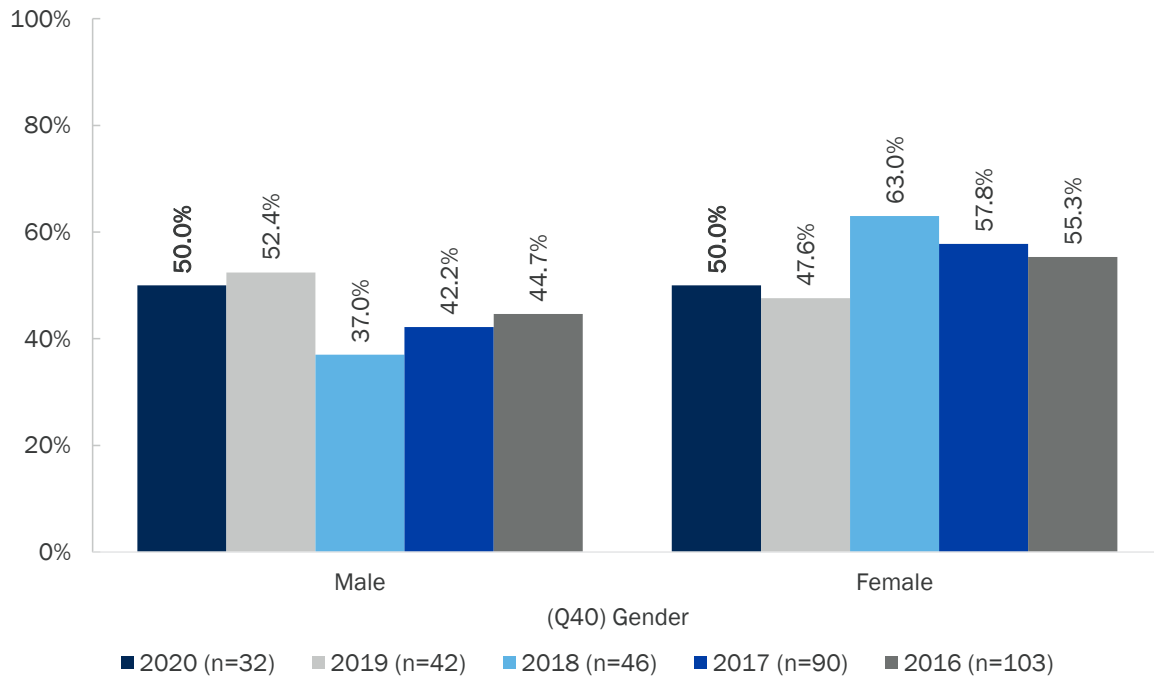
Significant Differences – Prior Years to 2020

- ■   No significant differences were observed.

Appendix A.   Survey Instrument

Residential Survey

2020 ICC Residential
Survey Instrument.doc

Non-Residential Survey

2020 ICC
Non-Residential Surve

Appendix B.   Explanation of Tables

Chi-Square Test

The chi-square test is used to measure the strength of association (or lack thereof) in two-way tables of frequencies. Stated somewhat differently, the chi-square test addresses the general issue of whether the distribution of one variable depends on the value of a second variable. It is particularly useful for exploring relationships among variables that take discrete values. While the chi-square test identifies whether or not a relationship exists it does not provide insight into the nature of the relationship. For example, in the table below, the chi-square indicates that the distribution of satisfaction scores differs by gender but it does not provide insight into whether males are more or less satisfied than females. The t-test of means and z-test of proportions / percentages (discussed on the pages which follow) provide additional insight into the relationships.

Chi-squares with a significance value of 0.05 or less are considered evidence against the hypothesis that changes in one variable are not associated with a change in the second variable. As shown in the example below, the significance of 0.0384 (which is less than the 0.05 threshold) indicates that reliable electric service ratings (Q2) vary by gender (Q40).

Example: Chi-Square Test

This example does not contain actual survey findings

```
Q2. (How would you rate the job that <utiln > does on....) Providing reliable electric service?


                           Q40. Gender
              ---------- ---------- ---------- ----------
                                              Cross Tab
              Frequency   (Male)    (Female)    Total
              ---------- ---------- ---------- ----------
                 (A)        (B)        (C)        (D)

0 Poor             4          3          1          4
                 0.7%       1.4%       0.3%       0.7%
1                  -          -          -          -

2                  3          -          3          3
                 0.5%                   0.8%       0.5%
3                  5          1          4          5
                 0.8%       0.5%       1.1%       0.8%
4                  6          4          2          6
                 1.0%       1.8%       0.5%       1.0%
5                 41         12         29         41
                 6.9%       5.5%       7.7%       6.9%
6                 19          5         14         19
                 3.2%       2.3%       3.7%       3.2%
7                 43         17         26         43
                 7.2%       7.7%       6.9%       7.2%
8                116         57         58        115
                19.4%      25.9%      15.4%      19.3%
9                 97         35         62         97
                16.2%      15.9%      16.5%      16.3%
10 Excellent     263         86        177        263
_____  44.1%       39.1%      47.1%      44.1%

TOTAL NON-RESPONSES     3          2          1          3
                      0.5%       0.9%       0.3%       0.5%
TOTAL ANSWERING       597        220        376        596
                    100.0%     100.0%     100.0%     100.0%

CHI-SQUARE                  <-------19.153------>
SIGNIFICANCE                     .0384*
```

> Significance is less than 0.05.
>
> Reject hypothesis that males and females rate reliable electric service the same.

```
Comparison Groups: BC
"*" Denotes Chi-Square where at least one cell has an expected value of less than 1    or more than 20% of the
cells have an expected value of less than 5.
```

T-test for Means

The t-test is used to test the hypothesis that two means are the same—for example, males and females. The use of a t-test assumes that the question of interest is measured on a continuous scale, for example responses to a satisfaction scale ranging from 0 meaning "poor" to 10 meaning "excellent." High values of a t-test at the 0.05 level of significance constitute evidence against the hypothesis that the two means are the same.

In the example table below, the upper-case B (under column C) indicates that the t-test provides strong evidence against the hypothesis that the mean score for females as reported in column C (8.59) is the same as the mean score reported for males as reported in column B (8.45). In other words, the upper-case B tells us that females provide higher reliable electric service ratings.

T-tests differ from the chi-square test discussed earlier. The chi-square test addresses the more general issue of whether the distribution of one variable depends on the value of a second variable, while the t-test focuses on the more specific issue of whether the mean or average value is different. The t-test provides additional insight into the observations. Chi-square tests are used to explore relationships among variables that take discrete values, while the t-test is used to explore relationships among variables measured on a continuous scale. While the chi-square test identifies that a relationship exists (e.g., the distribution of satisfaction scores is different depending on whether the respondent is male or female), the t-test facilitates an understanding of the nature of a relationship (e.g., mean satisfaction is higher for females than it is for males).

Example: T-Test for Means

This example does not contain actual survey findings

Q2. (How would you rate the job that <utiln > does on....) Providing reliable electric service?

```
                          Q40. Gender
             ---------- ---------- ---------- ----------
                                              Cross Tab
             Frequency    (Male)    (Female)    Total
             ---------- ---------- ---------- ----------
                (A)        (B)        (C)        (D)

MEAN           8.54       8.45       8.59       8.54
                                      B
```

Reject hypothesis that male and female mean ratings of reliable electric service are the same. Females rate providing reliable electric service significantly higher.

```
Comparison Groups: BCD
Independent T-Test for Means, Independent Z-Test for Percentages
Upper case letters indicate significance at the 95% level.
```

Z-test for Proportions/Percentages

This test is used to test the hypothesis that an observed proportion is the same for two different groups. For example, the z-test for proportions is used to test the hypothesis that the proportion of respondents providing a specific score on a satisfaction scale ranging from 0 meaning "poor" to 10 meaning "excellent" is the same for two groups of people (say males and females). High values of the z-test for proportions at a 0.05 level of significance constitute evidence against the hypothesis that the proportions are the same.

In the example table below, the upper-case C (under column B) indicates that the z-test provides strong evidence against the hypothesis that the percentage of males providing a score of "8" as reported in column B (25.9%) is the same as the percentage of females providing a score of "8" as reported in column C (15.4%). In other words, the upper-case C tells us that a higher proportion of males rated reliable electric service an "8."

The z-test for proportions shares characteristics of both the chi-square test and the t-test for means. Like the chi-square test, the z-test for proportions is used to statistically examine relationships for variables that may not be measured on a continuous scale. Like the t-test for means, the z-test for proportions facilitates an understanding of the nature or direction of any differences.

Example: Z-Test for Proportions/Percentages

*This example does not contain actual survey findings

Q2. (How would you rate the job that <utiln > does on....) Providing reliable electric service?

	Frequency	Q40. Gender (Male)	Q40. Gender (Female)	Cross Tab Total
	(A)	(B)	(C)	(D)
0 Poor	4	3	1	4
	0.7%	1.4%	0.3%	0.7%
1	–	–	–	–
2	3	–	3	3
	0.5%		0.8%	0.5%
3	5	1	4	5
	0.8%	0.5%	1.1%	0.8%
4	6	4	2	6
	1.0%	1.8%	0.5%	1.0%
5	41	12	29	41
	6.9%	5.5%	7.7%	6.9%
6	19	5	14	19
	3.2%	2.3%	3.7%	3.2%
7	43	17	26	43
	7.2%	7.7%	6.9%	7.2%
8	116	57	58	115
	19.4%	25.9%	15.4%	19.3%
		C		
9	97	35	62	97
	16.2%	15.9%	16.5%	16.3%
10 Excellent	263	86	177	263
	44.1%	39.1%	47.1%	44.1%
TOTAL NON-RESPONSES	3	2	1	3
	0.5%	0.9%	0.3%	0.5%
TOTAL ANSWERING	597	220	376	596
	100.0%	100.0%	100.0%	100.0%

> Reject hypothesis that the percentage of males and females providing a rating of "8" for reliable electric service are the same. A significantly higher percentage of males provided an "8" for reliable electric service.

Comparison Groups: BCD
Independent T-Test for Means, Independent Z-Test for Percentages
Upper case letters indicate significance at the 95% level.

Pearson Product Moment Correlation Coefficient

This test is used to determine the degree of linear relationship between two variables that are measured on continuous scales (e.g., responses to two questions both measured on a satisfaction scale ranging from 0 meaning "poor" to 10 meaning "excellent"). The value of the correlation coefficient statistic ranges from +1 to –1. A correlation of +1 means that there is a perfect positive linear relationship between two variables while a –1 indicates that there is a perfect negative linear relationship. A correlation coefficient of zero means there is no linear relationship between two variables. Correlation coefficients with an absolute value of 0.5 or higher are considered significant.

Year to Year Comparisons

Two statistical tests are used to determine "statistically" significant relationships between data from year to year. Significant relationships between 2020 and prior results for all rating questions are determined through the use of a standard independent t-test for means while significant relationships between 2020 and prior results for all yes/no and categorical questions are determined through the use of a standard independent z-test for percentages.

In this report, only "statistically" significant differences between 2020 and prior results are discussed. While many of these differences may not be large enough to be "meaningful" or "substantive" we, nevertheless, report them. The research team decided not to select a "substantive" significance level (which refers to an absolute difference between 2020 and prior results that must be achieved before a change is considered meaningful) because, while there is precedent for such a choice in customer satisfaction literature, setting a "substantive" significance level is fundamentally a subjective process. In order to keep the process completely objective, we have reported on all "statistically" significant differences. However, some of the "statistically" significant differences highlighted in this report (with respect to 2020 versus prior year comparisons) may not be meaningful because the absolute difference is small.

In the example table below, the upper-case A (under column B) tells us that "providing reliable electric service" is rated "statistically" significantly higher in 2002 than in 2000. However, the absolute difference between the mean scores for this attribute is 0.14. It could be reasonably argued that while this difference is "statistically" significant, it is not "meaningful" or "substantive."

Example: Year to Year Comparison

This example does not contain actual survey findings

```
Q2. (How would you rate the job that <utiln > does on....) Providing reliable electric service?


                          2000       2001       2002
                       ---------- ---------- ----------
                            (A)        (B)        (C)

MEAN                       8.45       8.50       8.59
                                                  A



Comparison Groups: ABC
Independent T-Test for Means, Independent Z-Test for Percentages
Upper case letters indicate significance at the 95% level.
```

Mean ratings for providing reliable electric service are "statistically" significantly higher in 2002 than in 2000. However the absolute difference between the two mean ratings is 0.14, which could be considered as not "meaningful" or "substantive."

Appendix C.   Correlation Tables

Table 6. Correlation Coefficients for All Residential Rating Questions

	Q1	Q2	Q3	Q4	Q5	Q7	Q15	Q16	Q17	Q21	Q27	Q28	Q29	Q32
Q1	–	.891	.635	.894	.690	.761	.809	.683	.666	.579	.625	.542	.411	.729
Q2		–	.634	.808	.712	.845	.754	.627	.672	.508	.542	.465	.385	.685
Q3			–	.526	.494	.519	.432	.554	.614	.518	.468	.580	.442	.463
Q4				–	.688	.681	.837	.722	.749	.529	.730	.618	.541	.706
Q5					–	.619	.665	.724	.759	.639	.500	.364	.468	.557
Q7						–	.807	.538	.511	.524	.486	.440	.351	.613
Q15							–	.698	.639	.470	.645	.579	.423	.700
Q16								–	.812	.632	.675	.602	.597	.511
Q17									–	.683	.519	.443	.639	.528
Q21										–	.310	.279	.543	.513
Q27											–	.905	.694	.561
Q28												–	.622	.491
Q29													–	.422
Q32														–

Note: Correlation coefficients with an absolute value of 0.50 or higher are shaded in this table and addressed in the Residential Executive Summary.

Table 7. Correlation Coefficients for All Non-Residential Rating Questions

	Q1	Q2	Q3	Q4	Q5	Q7	Q15	Q16	Q17	Q21	Q27	Q28	Q29	Q32
Q1	--	.849	.420	.759	.883	.651	.583	.677	.858	.422	.385	.546	.672	.626
Q2		--	.458	.872	.902	.685	.653	.664	.947	.806	.413	.682	.864	.832
Q3			--	.685	.327	.662	.215	.385	.497	.283	.876	.252	.450	.600
Q4				--	.762	.722	.425	.455	.895	.644	.499	.615	.806	.902
Q5					--	.699	.650	.664	.835	.684	.327	.752	.787	.627
Q7						--	.698	.736	.528	.610	.629	.253	.481	.428
Q15							--	.727	.428	.553	.243	.175	.473	.296
Q16								--	.517	.529	.565	.242	.464	.310
Q17									--	.645	.417	.748	.876	.916
Q21										--	.288	.538	.703	.607
Q27											--	.271	.394	.448
Q28												--	.740	.699
Q29													--	.860
Q32														--

Note: Correlation coefficients with an absolute value of 0.50 or higher are shaded in this table and addressed in the Non-Residential Executive Summary.

Appendix D. Residential Tables

Table 8. Residential Significant Chi-Squares

	q6	q8	q9	q10	q11	q12	q13	q14	q18	q19	q20	q22	q23	q24	q25	q26	q30	q31	q33	q34	q35	q36	q37	q40
q1		X	X	X	X	X	X						X			X			X	X				
q2		X		X	X	X	X						X		X			X						
q3		X		X							X													
q4	X	X	X			X	X						X	X	X				X					
q5	X	X		X	X	X	X				X		X	X		X		X						
q6																					X			
q7		X			X	X							X	X	X									
q8																								
q9																								
q10																								
q11																								
q12																								
q13																								
q14																								
q15		X			X	X	X					X			X									
q16		X					X						X	X										
q17		X				X	X						X		X									
q18																							X	
q19																			X	X				
q20																						X		
q21		X	X			X					X													
q22																								
q23																								
q24																						X		
q25																								
q26																				X	X			
q27	X	X												X	X				X					
q28													X	X	X	X	X							
q29		X			X								X	X	X		X							
q30																								
q31																							X	
q32		X				X	X						X											

Note: Shaded areas of the table represent cross-tabulations that were not performed pursuant to Illinois Administrative Code 411, "Electric Reliability." Boxes containing an "X" indicate a significant chi-square value for the cross-tabulation between the question in the row header and the question in the column header. Areas with significant findings are discussed in Residential Executive Summary.

Required cross tabulations, statistical ranking tables, and t-test/z-test tables for all residential survey questions are available in electronic format. The file names are: Appendix D – Mt Carmel Residential Chi Square.doc and Appendix D – Mt Carmel Residential Z Test & T Test.doc, respectively.

Appendix E.   Non-Residential Tables

Table 9. Non-Residential Significant Chi-Squares

	q6	q8	q9	q10	q11	q12	q13	q14	q18	q19	q20	q22	q23	q24	q25	q26	q30	q31	q38	q39	q40
q1	X						X									X					
q2	X															X					
q3					X							X									
q4																					
q5	X					X															
q6																					
q7	X											X									
q8																					
q9																					
q10																					
q11																					
q12																					
q13																					
q14																					
q15							X				X										
q16	X						X						X			X					
q17	X																				
q18																					
q19																					
q20																					
q21				X	X						X										
q22																				X	
q23																					
q24																					
q25																			X		
q26																					
q27													X								
q28							X			X											
q29					X					X			X								
q30																					
q31																					
q32	X																				

Note: Shaded areas of the table represent cross-tabulations that were not performed pursuant to Illinois Administrative Code 411, "Electric Reliability." Boxes containing an "X" indicate a significant chi-square value for the cross-tabulation between the question in the row header and the question in the column header. Areas with significant findings are discussed in the Non-Residential Executive Summary.

Required cross tabulations, statistical ranking tables, and t-test/z-test tables for all non-residential survey questions are available in electronic format. The file names are: Appendix E – Mt Carmel Non-Residential Chi Square.doc and Appendix E – Mt Carmel Non-Residential Z Test & T Test.doc, respectively.

Appendix F.   Year to Year Comparisons

Required cross tabulations comparing 2020 with prior results for all residential survey questions are available in electronic format. The file name is Appendix F – Mt Carmel Residential Comparison 2016-2020.doc.

Required cross tabulations comparing 2020 with prior results for all non-residential survey questions are available in electronic format also. The file name is Appendix F – Mt Carmel Non-Residential Comparison 2016-2020.doc.

For more information, please contact:

Benjamin Messer
Principal Consultant

503-943-2372 Tel
617-497-7944 Fax
bmesser@opiniondynamics.com

3943 NE Martin Luther King Jr. Blvd., STE 300
Portland, OR 97212